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Geotechnical  
Environmental  
Water Resources  
Ecological

MassDEP RTN 3-23246

# Phase V Status Report No. 6 and Remedial Monitoring Report No. 21

50 Tufts Street, Somerville, Massachusetts

**Submitted to:**  
UniFirst Corporation  
68 Jonspin Road  
Wilmington, MA 01887

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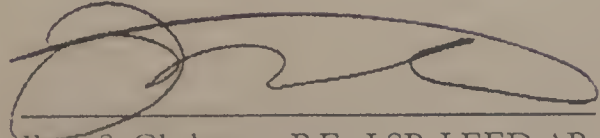
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## Acronyms and Abbreviations

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µg/L	micrograms per liter
AUL	Activity and Use Limitation
CEP	Critical Exposure Pathway
COPC	Compounds of Potential Concern
CRA	Comprehensive Remedial Action
CSA	Comprehensive Site Assessment
DNAPL	dense non-aqueous phase liquid
EPA	U.S. Environmental Protection Agency
EPMM	Exposure Pathway Mitigation Measure
FIR	Final Inspection Report
GEI	GEI Consultants, Inc.
GLX	Green Line Extension
IH	Imminent Hazard
IRA	Immediate Response Action
lbs	pounds
LQG	Large Quantity Generator
LSP	Licensed Site Professional
MassDEP	Massachusetts Department of Environmental Protection
MBTA	Massachusetts Bay Transportation Authority
MCP	Massachusetts Contingency Plan
MNA	Monitored Natural Attenuation
NAPL	non-aqueous phase liquid
NSR	No Significant Risk
O&M	Operation and Maintenance Manuals
OHM	oil and/or hazardous material
OMM	Operation, Maintenance, and Monitoring
PCE	tetrachloroethylene (perchloroethylene)
PVC	polyvinyl chloride
RAA	Remedial Action Alternative





## Acronyms and Abbreviations

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O&M	Operation and Maintenance Manuals
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OMM	Operation, Maintenance, and Monitoring
PCE	tetrachloroethylene (perchloroethylene)
PVC	polyvinyl chloride
RAA	Remedial Action Alternative





RAM	Release Abatement Measure
RAO	Response Action Outcome
RAP	Remedial Action Plan
RIP	Remedy Implementation Plan
RMR	Remedial Monitoring Report
ROS	Remedy Operations Status
RTN	Release Tracking Number
SHE	Substantial Hazard Evaluation
SSDS	sub-slab depressurization system
SVE	soil vapor extraction
TCA	1,1,1-trichloroethane
TCE	trichloroethylene
VOC	volatile organic compound



## Executive Summary

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On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. (GEI) prepared this Phase V Status Report No. 6 and Remedial Monitoring Report (RMR) No. 21 for the site located at 50 Tufts Street in Somerville, Massachusetts (the Site). The Site is identified by Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number (RTN) 3-23246. The Site includes the 50 Tufts Street property (the Property), other properties in the neighborhoods east and immediately north, south, and west of the Property, and the Michael E. Capuano Early Childhood Center (Capuano Center) located at 150 Glen Street in Somerville, Massachusetts. This report covers the period from December 16, 2013 through June 15, 2014.

Based on amendments to the Massachusetts Contingency Plan (MCP) effective June 20, 2014, the Site does not meet the inclusionary criteria for Tier I and GEI is reclassifying the Site as Tier II.

## Background

From approximately 1955 to 2002, the Property was used for storage and distribution of industrial chemicals, laundry supplies, and dry cleaning supplies. Chemicals stored at, and transported to and from the Property, included chlorinated volatile organic compounds (VOCs). These chlorinated VOCs – particularly tetrachloroethylene (also called perchloroethylene [PCE]), trichloroethylene (TCE), and 1,1,1-trichloroethane (TCA) – have been detected in soil, soil vapor, indoor air, and groundwater at the Property and are therefore the compounds of potential concern (COPCs) for the Site. In some buildings within the Site, chlorinated VOCs have been detected in indoor air samples.

The detection of chlorinated VOCs in indoor air at some buildings required the implementation of an Immediate Response Action (IRA). The “Immediate Response Action Plan” associated with RTN 3-23246 was submitted to MassDEP on January 9, 2006. The Site is currently classified Tier IC (Permit No. W085813). The “Phase II Comprehensive Site Assessment (CSA), Method 3 Risk Characterization, and Phase III Remedial Action Plan (RAP)” (Phase II/III) for the Site was submitted to MassDEP on July 14, 2008. The “Phase IV Remedy Implementation Plan” (Phase IV RIP) was submitted to MassDEP on August 10, 2009. The “Immediate Response Action Completion Report and Remedial Monitoring Report No. 11” (IRAC Report) was submitted to MassDEP on November 13, 2009, and the “Immediate Response Action Completion Report Amendment,” (IRAC Report Amendment) was submitted to MassDEP on April 1, 2011. The “Phase IV Final Inspection





Report, Remedial Monitoring Report No. 15, and Phase V Remedy Operation Status Report” (Phase IV FIR/Phase V ROS) was submitted to MassDEP on August 4, 2011.

The remedial action alternative (RAA) selected by the Phase III evaluation included:

1. Installing Exposure Pathway Mitigation Measures<sup>1</sup> (EPMMs) to the extent feasible (e.g. vapor barrier and venting system, or sub-slab depressurization systems [SSDSs]), and recording Activity and Use Limitations (AULs) as appropriate, for residences where the soil vapor migration pathway to indoor air has been confirmed, and installing EPMMs in occupied commercial buildings to reduce chlorinated VOC concentrations in indoor air to that which constitutes a condition of No Significant Risk (NSR).
2. Continuing to operate the soil vapor extraction (SVE) system at the Property to remove COPCs from the vadose zone.
3. Conducting a Site-wide Monitored Natural Attenuation (MNA) program to evaluate overburden and bedrock groundwater plume concentrations over time to assess the rate of natural attenuation processes, and to confirm that groundwater concentrations of chlorinated VOCs are generally stable or decreasing.

The Phase IV FIR/Phase V ROS documented that construction and implementation of the Comprehensive Response Action (CRA) has been completed; and additional activities, such as operation and monitoring of active remedial systems, will be conducted under Phase V ROS.

In accordance with the MCP, particularly 310 CMR 40.0892, this Phase V Status Report No. 6 and RMR No. 21 includes the following information regarding the remedial actions being conducted at the Site:

- A description of the type and frequency of operation, maintenance, and/or monitoring (OMM) activities.
- A description of any significant modifications made to the OMM activities since the last reporting period.
- An evaluation of the performance of the remedial action during the reporting period, including whether the remedial action is achieving remedial goals specified in the Phase IV RIP as described in 310 CMR 40.0874(3), and a description of any

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<sup>1</sup> GEI has previously referred to Exposure Pathway Elimination Measure (EPEMs) to describe the vapor intrusion mitigation systems installed at the Site. However, the MCP revisions effective June 20, 2014 have promulgated the term Exposure Pathway Mitigation Measure (EPMM). Therefore, GEI will now refer to EPMMs to remain consistent with the MCP revisions.





conditions or problems noted during the reporting period that are, or may be, affecting the performance of the remedial action.

- A description of the measures taken to correct any conditions or problems that may have been encountered during the reporting period.

A summary of OMM activities conducted at the Site to date are as follows:

## **Capuano Center**

An SSDS is installed in the east wing of the Capuano Center. In addition, GEI sealed certain slab/wall joints at the Capuano Center to mitigate a potential preferred migration pathway. GEI has conducted 23 rounds of indoor air sampling since the SSDS was installed in February 2007. The soil vapor migration pathway to indoor air has been eliminated and a condition of NSR has been achieved for occupants of the Capuano Center. Accordingly, it is GEI's opinion that the system was constructed and is operating in accordance with the design standards provided in the Phase IV RIP, and has achieved the remedial objectives.

Given that it has been determined that the system is achieving its remedial design objectives, GEI has discontinued indoor air sampling, but will continue to inspect and maintain the system. GEI will continue to monitor operational parameters and sub-slab conditions for the system (e.g., flow rate, vacuum) at the headers on a monthly basis, and collect readings from all indoor and outdoor monitoring points quarterly, to confirm ongoing system performance. GEI will continue operation and monitoring of the SSDS at the Capuano Center under ROS.

## **Residential and Commercial Properties**

As part of the IRA, while Site conditions were still under investigation, GEI took timely action to evaluate and implement measures to eliminate or mitigate Critical Exposure Pathways (CEPs) to the extent feasible. The feasibility of such measures was determined by physical conditions, including the suitability of each property to installation of active or passive vapor controls, and by amenability of property owners to provide legal access. Mitigative measures were initially implemented as IRA activities. The Phase II/Phase III assessment and evaluation of RAAs included response actions to address CEPs as part of the recommended CRA. With the submittal of the Phase IV RIP, the IRA addressing CEPs was closed with an IRAC Report and an IRAC Report Amendment, in accordance with the MCP (310 CMR 40.0427). Following the submittal of the IRAC Report and IRAC Report Amendment, all further response actions were continued under Phase IV. Construction and implementation of the CRA has been completed; additional activities, such as operation and monitoring of active remedial systems, will be conducted under Phase V ROS or, in the future, as active EPMMs implemented as Partial Permanent Solutions with Conditions.



Following is a summary of activities conducted and results obtained with respect to EPMMs through June 15, 2014:

- EPMMs have been installed in 21 residential and commercial properties, not including the EPMMs installed at 50 Tufts Street, 60 Tufts Street, and the Capuano Center. The results of post-EPMM installation indoor air sampling indicate that the 20 EPMMs installed prior to 2014 have achieved the remedial objectives. A new EPMM installation was completed at 34 Knowlton Street in June 2014; however, post- installation indoor air sampling was not conducted during this reporting period. Results of post-EPMM installation indoor air sampling at 34 Knowlton Street will be included in the next status report.
- The Method 3 Risk Characterizations prepared for the Site have demonstrated that a condition of NSR exists at individual properties at the Site, with the exception of 9, 17, and 19 Tufts Street and 105-107 Washington Street (see below).
- As documented in the IRAC Report Amendment, the owners of 9, 17, and 19 Tufts Street and 105-107 Washington Street have denied GEI access to enter their residences and install an EPMM, despite numerous oral and written requests from both GEI and MassDEP. Therefore, implementation of remedial systems to achieve a condition of NSR on these properties is infeasible. In the event that an owner of one of these properties indicates in the future that access will be granted, and results of indoor air sampling indicate that a condition of NSR has not been achieved, an EPMM will be installed. As part of the CRA, including ongoing operation of the SSDS and SVE systems on the Property and MNA, environmental conditions will continue to be addressed at the Site as a whole.
- MassDEP promulgated amendments to the MCP on June 20, 2014. GEI is re-evaluating the status of response actions based on the amendments and associated guidance.
- Based on the MCP amendments, a Permanent Solution with Conditions Statement will be submitted for each property with an Option 1, 2 or 3 EPMM where the EPMM has achieved the remedial objectives, an AUL has been recorded for the property to maintain the integrity of the EPMM, and sufficient post-EPMM indoor air sampling has been conducted. The filing of a Partial Permanent Solution with Conditions Statement for an individual property documents the achievement of regulatory closure under the MCP. Therefore, the Phase V provisions will not apply to properties for which a Partial Permanent Solution with Conditions Statement has been submitted.





## **60 Tufts Street**

An SSDS is installed in the 17-unit condominium building at 60 Tufts Street. The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS influences nearly the entire floor slab area. Indoor air testing results indicate that a condition of NSR has been achieved for building occupants at 60 Tufts Street. Accordingly, it is GEI's opinion that the system was constructed and is operating in accordance with the design standards provided in the Phase IV RIP, and has achieved the remedial objectives.

Given that it has been determined that the system is achieving its remedial design objectives, GEI has discontinued indoor air sampling, but will continue to inspect and maintain the system. GEI will continue to monitor operational parameters and sub-slab conditions for the system (e.g., flow rate, vacuum) on a monthly basis to confirm ongoing system performance. GEI will continue operation and monitoring of the SSDS at 60 Tufts Street under ROS.

## **50 Tufts Street Property**

An SSDS and an SVE system are installed at the Property. The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS covers most of the building slab area. The building is currently occupied by several tenants. Based on indoor air testing results collected since the combined system has been in operation, a condition of NSR has been achieved for the building at the Property for full-time commercial workers. Accordingly, it is GEI's opinion that the system was constructed and is operating in accordance with the design standards provided in the Phase IV RIP, and has achieved the remedial objectives. GEI will continue operation and monitoring of the combined SSDS/SVE system at 50 Tufts Street under ROS.

## **Future Activities**

The MCP amendments effective June 20, 2014 require that remote telemetry be installed on active EPMMs to provide MassDEP notification of system shutdowns. The systems at 50 Tufts Street, 60 Tufts Street, and the Capuano Center currently have telemetry that provides notification to GEI. During the next reporting period, GEI will modify the existing telemetry to provide the required shutdown notification to MassDEP. In addition, GEI will arrange with owners of the other properties within the disposal Site where active remedial systems have been installed to add the required telemetry. In the next reporting period, GEI also will specify the operating regimen for each active EPMM and document the longest duration of a shutdown that would be consistent with levels of exposure that do not pose an Imminent Hazard (IH) and that poses a condition of NSR.



## **50 Tufts Street Contaminant Mass Removal**

The combined SSDS/SVE system installed at the Property serves to protect indoor air quality and to remove source material from the vadose zone below and around the building.

Monitoring data from both the SSDS and SVE components through May 21, 2014 show that approximately 8,140 pounds (lbs) of VOCs have been removed from the vadose zone at the Property. GEI will continue operation and monitoring of the combined SSDS/SVE system at 50 Tufts Street under ROS.

## **Green Line Extension Project**

The Massachusetts Bay Transit Authority (MBTA) is designing and constructing the Green Line Extension (GLX) (GLX Project) which will extend existing MBTA Green Line service to Union Square in Somerville and beyond to College Avenue in Medford. The GLX Project passes through the Tufts Street Disposal Site and includes significant infrastructure improvements including a new pump station, reconstruction of the bridge passing over Washington Street, new train tracks within the MBTA right-of-way, and utility improvements. A new train station will be constructed just south of the Site boundary.

On behalf of the MBTA, between September 2012 and April 2014, Kleinfelder of Cambridge, Massachusetts, conducted subsurface investigations in the vicinity of the Site as part of the GLX Project. The investigations included soil borings and monitoring well installation. The subsurface investigations performed by Kleinfelder have further confirmed the disposal site boundary in the vicinity of Washington Street. GEI is communicating with the GLX Project Team and will continue to monitor construction activities performed within the disposal site boundary. Any response action associated with the GLX construction will be performed as a Release Abatement Measure (RAM) by the MBTA. Mr. Richard Quatemen of Kleinfelder will act as the Licensed Site Professional (LSP) for any such RAM activities.

## **Monitored Natural Attenuation**

An evaluation of the MNA program indicates that the groundwater plumes are stable. GEI will conduct groundwater sampling once per year at the majority of monitoring wells at the Site to confirm that the overburden and bedrock groundwater plumes remain stable.

During this reporting period, a comprehensive round of groundwater sampling was conducted. GEI has been monitoring concentration fluctuations in MW122, MW112A, MW121D, and MW118D. These results are within a range of fluctuation that is consistent with continuing plume stability, particularly when considered in context with prior





groundwater results from all monitoring wells. GEI will perform additional groundwater sampling in fall 2014.

## **Remedial Monitoring Report No. 21**

Remedial Monitoring Report No. 21, documenting OMM activities of active remedial systems at the Site, is presented in the BWSC-108A and 108B Transmittal Forms in Appendix A.



# 1. Introduction

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On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. (GEI) prepared this Phase V Status Report No. 6 and Remedial Monitoring Report (RMR) No. 21 for the site located at 50 Tufts Street in Somerville, Massachusetts (the Site; Fig. 1-1). The Site is identified by Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number (RTN) 3-23246. The Site includes the 50 Tufts Street property (the Property), other properties in the neighborhoods east and immediately north, south and west of the Property, and the Michael E. Capuano Early Childhood Center (Capuano Center) located at 150 Glen Street in Somerville, Massachusetts (Fig. 1-2). This report covers the period from December 16, 2013 through June 15, 2014.

## 1.1 Contact Information

### **Person responsible for submittal of the Phase V Status Report:**

Tim Cosgrave  
Senior Manager, EHS  
UniFirst Corporation  
68 Jonspin Road  
Wilmington, MA 01887  
978-658-8888

### **Licensed Site Professional (LSP):**

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Vice President  
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781-721-4012  
LSP License No. 9719

### **Person who will own, operate, and/or maintain the selected Remedial Action Alternative (RAA):**

Tim Cosgrave  
Senior Manager, EHS  
UniFirst Corporation  
68 Jonspin Road  
Wilmington, MA 01887  
978-658-8888



## 1.2 Background

In 2002, a release of chlorinated volatile organic compounds (VOCs) (particularly tetrachloroethylene [also known as perchloroethylene (PCE)], trichloroethylene [TCE], and 1,1,1-trichloroethane [TCA]) to soil and groundwater at the Property was reported to the MassDEP and assigned RTN 3-23246. Three other RTNs were subsequently issued for the Site: 3-24358, 3-24376, and 3-26114. For tracking and reporting purposes, these RTNs have been consolidated under RTN 3-23246.

The detection of chlorinated VOCs in indoor air at some buildings within the Site required the implementation of an Immediate Response Action (IRA). The “Immediate Response Action Plan” associated with RTN 3-23246 was submitted to MassDEP on January 9, 2006. The Site is currently classified Tier IC (Permit No. W085813). The “Phase II Comprehensive Site Assessment (CSA), Method 3 Risk Characterization, and Phase III Remedial Action Plan (RAP)” (Phase II/III) for the Site was submitted to MassDEP on July 14, 2008. The “Phase IV Remedy Implementation Plan” (Phase IV RIP) was submitted to MassDEP on August 10, 2009. The “Immediate Response Action Completion Report and Remedial Monitoring Report No. 11” (IRAC Report) was submitted to MassDEP on November 13, 2009, and the “Immediate Response Action Completion Report Amendment” (IRAC Report Amendment) was submitted to MassDEP on April 1, 2011. The “Phase IV Final Inspection Report, Remedial Monitoring Report No. 15, and Phase V Remedy Operation Status Report,” (Phase IV FIR/Phase V ROS) was submitted to MassDEP on August 4, 2011.

The Phase II/Phase III identified the following areas of the Site requiring investigation and mitigation:

- The Property;
- The Capuano Center;
- 60 Tufts Street, a 17-unit condominium building north of the Property; and
- Certain residences and commercial buildings located in the vicinity of the Property.

The Remedial Action Alternative (RAA) selected by the Phase III was:

1. Installing Exposure Pathway Mitigation Measures<sup>2</sup> (EPMMs) to the extent feasible (e.g. vapor barrier and venting system, or sub-slab depressurization systems [SSDSs]), and recording Activity and Use Limitations (AULs) as appropriate, for

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<sup>2</sup> GEI has previously referred to Exposure Pathway Elimination Measure (EPEMs) to describe the vapor intrusion mitigation systems installed at the Site. However, the MCP revisions effective June 20, 2014 have promulgated the term Exposure Pathway Mitigation Measure (EPMM). Therefore, GEI will now refer to EPMMs to remain consistent with the MCP revisions.







residences where the soil vapor migration pathway to indoor air has been confirmed, and installing EPMs in occupied commercial buildings to reduce chlorinated VOC concentrations in indoor air to that which constitutes a condition of No Significant Risk (NSR).

2. Continuing to operate the soil vapor extraction (SVE) system at the Property to remove compounds of potential concern (COPCs) from the vadose zone.
3. Conducting a Site-wide Monitored Natural Attenuation (MNA) program to evaluate overburden and bedrock groundwater plume concentrations over time to assess the rate of natural attenuation processes, and to confirm that groundwater concentrations of chlorinated VOCs are generally stable or decreasing.

As part of the IRA, while Site conditions were still under investigation, GEI took timely action to evaluate and implement measures to eliminate or mitigate Critical Exposure Pathways (CEPs) to the extent feasible. The feasibility of such measures was determined by physical conditions, including the suitability of each property to installation of active or passive vapor controls, and by amenability of property owners to provide legal access. Mitigative measures were initially implemented as IRA activities. The Phase II/Phase III assessment and evaluation of RAAs included response actions to address CEPs as part of the recommended Comprehensive Response Actions (CRAs). With the submittal of the Phase IV RIP, the IRA addressing CEPs was closed with an IRAC Report and IRAC Report Amendment, in accordance with the Massachusetts Contingency Plan (MCP), particularly 310 CMR 40.0427. Following the submittal of the IRAC Report and IRAC Report Amendment, all further response actions were continued under Phase IV and Phase V.

The CRA for the Site includes continued active operation and maintenance of the existing commercial and residential EPMs, and the SSDS and SVE system at the Property, for the purpose of achieving a Permanent Solution pursuant to 310 CMR 40.0890. It is GEI's opinion that the Site meets the requirements for ROS in accordance with the MCP (310 CMR 40.0893[2]):

- The Phase III RAP was completed on July 14, 2008. The Phase IV RIP was completed on August 10, 2009.
- A final inspection has been performed and confirmed that the CRA has been constructed and implemented in accordance with the Phase IV RIP and is meeting projected design standards to achieve a Permanent Solution.
- Each source of oil and/or hazardous material (OHM) is controlled at the Site. Non-aqueous phase liquid (NAPL) is not visibly present at the Site. Any dense non-aqueous phase liquid (DNAPL) that may be present is not migrating and exists in a stable configuration. The Phase III demonstrated that it is not feasible to eliminate DNAPL at the Site. The dissolved-phase groundwater plumes and vapor plumes are



stable and are not causing an increase in concentrations of VOCs in groundwater, soil, soil vapor, or indoor air. There are no unpermitted releases of OHM at the Site.

- Any substantial hazards have been eliminated as documented in the Substantial Hazard Evaluation (SHE) completed by ARCADIS U.S., Inc. (ARCADIS) of Chelmsford, Massachusetts in August 2011.
- In the next reporting period, GEI will document the longest duration of a shutdown of each active EPMM that would be consistent with levels of exposure that do not pose an Imminent Hazard (IH) and poses a condition of NSR.

Construction and implementation of the CRA have been completed; additional activities, such as operation and monitoring of active remedial systems, or installation of new EPMMs, will be conducted under Phase V. The Site will operate in ROS until a Permanent Solution is achieved, except for any portions of the Site that may be closed under Permanent Solution with Conditions Partial Statements. Operating the SSDS and SVE systems, together with MNA, will ultimately achieve a Permanent Solution for the Site.

The results of post-EPMM installation indoor air sampling and system monitoring indicates that each of the Option 1, 2, or 3 EPMMs installed prior to 2014 have achieved the remedial objectives. A new EPMM installation was completed at 34 Knowlton Street in June 2014; results of post-installation indoor air sampling at 34 Knowlton Street will be included in the next status report.

GEI will continue to conduct annual operation, maintenance, and/or monitoring (OMM) activities for installed EPMMs where sufficient indoor air sampling has been conducted, and not repeat indoor air testing, to confirm continued system effectiveness. GEI also conducts groundwater sampling and analysis as part of the MNA program.

### **1.3 Purpose and Scope**

The Site entered Phase V with the submittal of the Phase IV FIR/Phase V ROS on August 4, 2011. In accordance with the MCP (310 CMR 40.0892), this Phase V Status Report No. 6 and RMR No. 21 includes the following information regarding the remedial actions being conducted at the Site:

- A description of the type and frequency of OMM activities.
- A description of any significant modifications made to the OMM activities since the last reporting period.
- An evaluation of the performance of the remedial action during the reporting period, including whether the remedial action is achieving remedial goals specified in the Phase IV RIP as described in 310 CMR 40.0874(3), and a description of any





conditions or problems noted during the reporting period that are or may be affecting the performance of the remedial action.

- A description of the measures taken to correct any conditions or problems that may have been encountered during the reporting period.

This report covers the period from December 16, 2013 through June 15, 2014. Details of the engineering concepts, design criteria, construction plans, and specifications were previously provided to MassDEP as part of the Phase IV RIP, IRA Status Reports, RMRs, and IRA Plan Modifications and are not revisited in this report.

## **1.4 Public Involvement (310 CMR 40.1400)**

UniFirst and GEI conducted a series of community meetings to inform property owners, residents, and City of Somerville (the City) officials about the Site. GEI will provide copies of this Phase V Status Report No. 6 and RMR No. 21 to the local public document repositories that were established for the Site at the Somerville Central Public Library and at the City of Somerville Clerk's Office. GEI will also provide an electronic version of this report to the City for posting to the City's web site.

This report was submitted through eDEP (Transaction No. 668619) on August 1, 2014. A copy of the eDEP Transmittal Form (BWSC-108) is provided in Appendix A.

Copies of property owner notification letters, including notice of sampling letters, chemical testing results letters, and other miscellaneous correspondence sent during the reporting period, are in Appendix B.

## **1.5 Tier Re-Classification**

Amendments made to the MCP effective June 20, 2014, revised the Tier Classification process. The Numerical Ranking System (NRS) has been eliminated. The following Tier I criteria (310 CMR 40.0520[2]) now determine Tier Classification for the Site:

- (a) whether there is evidence of groundwater contamination with oil and/or hazardous material at concentrations equal to or exceeding the applicable RCGW-1 Reportable Concentration set forth in 310 CMR 40.0360, and such groundwater is located within an Interim Wellhead Protection Area, Zone II, or within 500 feet of a Private Water Supply Well;
- (b) whether an Imminent Hazard is present;
- (c) whether one or more remedial actions are required as part of an Immediate Response Action pursuant to 310 CMR 40.0414(2); or





- (d) whether one or more response actions are required as part of an Immediate Response Action to eliminate or mitigate a Critical Exposure Pathway pursuant to 310 CMR 40.0414(3).

The Site is not located in a GW-1 Area. As discussed in Section 1.2, the IRA has been closed, and there are no IHs present at the Site. Accordingly, the Site can now be classified as Tier II. Appendix A includes a copy of the Tier Classification Transmittal Form (BWSC-107) (eDEP Transaction No. 668561) re-classifying the Site as Tier II. Copies of the Tier reclassification notification letters to public officials, and a copy of the public newspaper notice, are included in Appendix A.



## **2. Data Collection**

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### **2.1 Kleinfelder Investigation**

Between September 2012 and April 2014, Kleinfelder of Cambridge, Massachusetts advanced soil borings and installed groundwater monitoring wells in support of the Massachusetts Bay Transit Authority (MBTA) Green Line Extension (GLX) Project. Although these data were not collected for purpose of evaluating or implementing Phase V response actions at the Site, to the extent Kleinfelder has provided data to GEI, those data are included in this Report.

#### **2.1.1 Kleinfelder 2012**

Between August and September 2012, Kleinfelder installed five monitoring wells south of Washington Street (KE-114[OW] through KE-117[OW] and MW-5R) as part of a subsurface investigation for the GLX Project. Locations of the monitoring wells are shown on Fig. 1-2. Boring logs for the monitoring well installations are included in Appendix C. GEI has not been provided information indicating that soil or groundwater sampling was performed during the monitoring well installation in 2012.

#### **2.1.2 Kleinfelder 2014**

Between March 24 and April 7, 2014, Kleinfelder advanced 10 soil borings (KE-202-WS-D and KE-202-WS-S south of Washington Street, and KE-204-WS through KE-211-WS north of Washington Street and within the MBTA railroad right-of-way). Soil samples were submitted to Con-Test Analytical Laboratory (Con-Test) of East Longmeadow, Massachusetts for VOCs. The sample results are summarized in Table 2-1. Laboratory data reports are included in Appendix D. The boring locations are shown in Fig. 1-2. Elevated PCE concentrations were detected from 8 to 15 feet below ground surface in boring locations KE-206-WS, KE-WS-208, and KE-210-WS, which are in the immediate vicinity of the 50 Tufts Street property.

### **2.2 Groundwater Sampling**

#### **2.2.1 GEI**

GEI conducted annual groundwater sampling at 20 monitoring wells between April and June 2014. A summary of all GEI groundwater sampling activities at the Site, including dates of sampling during this reporting period, is in Table 2-2. The groundwater testing results are summarized in Table 2-3, along with groundwater data from previous investigations. Monitoring well locations and the monitoring wells sampled by GEI during this reporting





period are shown in Fig. 2-1. The laboratory data reports associated with the April to June 2014 groundwater testing are in Appendix D.

### **2.2.2 Kleinfelder**

Between February and April 2014 Kleinfelder conducted groundwater sampling at 14 monitoring wells (KE-114[OW] through KE-117[OW], MW-5R, and KE-202-WS through KE-210-WS). Groundwater samples were submitted to Con-Test for VOC analyses. The sample results are summarized in Table 2-4. The laboratory data reports associated with the groundwater testing are in Appendix D. Monitoring well locations and the monitoring wells sampled by Kleinfelder during this reporting period are shown in Fig. 2-1.

### **2.2.3 Revised Extent of GW-2 Exceedance for PCE**

The Kleinfelder groundwater analytical results have provided additional data confirming the disposal site boundary in the vicinity of Washington Street. Incorporating these data, GEI has refined the Site boundary based on the estimated extent of shallow groundwater concentrations exceeding the Method 1 GW-2 standard for PCE (50 micrograms per liter [ $\mu\text{g/L}$ ]), in the vicinity of Washington Street. Fig. 1-2 presents the extent of PCE in shallow groundwater exceeding the Method 1 GW-2 standard throughout the Site, based on Site-wide groundwater sampling results through June 2014.

Fig. 1-2 also presents the extent of PCE in shallow groundwater exceeding the proposed new Method 1 GW-2 standard throughout the Site (20  $\mu\text{g/L}$ ). MassDEP has indicated that it intends to revise the Method 1 GW-2 standard for PCE to 20  $\mu\text{g/L}$ , and to promulgate the revised GW-2 standard in a trailer package to the MCP amendments that will be issued at a later date. As demonstrated in Fig. 1-2, the extent of PCE in shallow groundwater exceeding the proposed Method 1 GW-2 standard is not significantly different from the extent of PCE in shallow groundwater exceeding the current GW-2 standard. Extensive sub-slab soil vapor and indoor air testing has been performed at the properties that are within the area where PCE in shallow groundwater exceeds 20  $\mu\text{g/L}$ . Accordingly, we do not anticipate that additional investigation will be required as a result of the proposed revision to the Method 1 GW-2 standard for PCE.

### **2.2.4 Groundwater Plume Stability**

Based on historic groundwater sampling conducted since 2006, the nature and extent of groundwater contamination at the Site has been well-characterized. In addition, groundwater analytical results are incorporated into the MNA program to support the plume stability monitoring and natural attenuation evaluation, as discussed in Section 7. Based on an analysis of the Mann-Kendall statistical trend test results, which incorporates the additional



groundwater testing data, the PCE, TCE, and TCA groundwater plumes continue to be stable or are slightly decreasing at the Site

### **2.3 34 Knowlton Street**

In December 2013, Sterling Construction & Development LLC (Sterling) of Chelsea, Massachusetts began construction of a two-family residential building at 34 Knowlton Street. As part of construction activities, GEI collected two soil samples from within the foundation excavation for disposal parameters. Chlorinated VOCs were not detected in either of the soil samples. Chemical testing results were previously submitted with the RAM Status Report No. 1 (for 34 Knowlton Street) submitted to MassDEP April 4, 2014, and are therefore not re-presented in this report.

### **2.4 Indoor Air Sampling**

Since January 2006 GEI collected indoor air samples at 72 residences and commercial buildings. Fig. 2-2 shows buildings where GEI conducted indoor air sampling. The procedure for collecting indoor air samples was presented in IRA Status Report No. 3. Samples are typically collected from the basement and first floor of each building.

Between December 16, 2013 and June 15, 2014, GEI did not perform any additional indoor air sampling.





## **3. Capuano Center Phase IV Activities**

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### **3.1 Background**

The remedial system at the Capuano Center is an SSDS with 18 sub-slab extraction points in six classrooms of the east wing. The interior slab/exterior wall joints of the six classrooms were sealed with a flexible epoxy sealant and extraction points were installed horizontally through the exterior wall. The extraction points are attached to three collection headers in exterior underground trenches and are operated by a 1.5-horsepower regenerative blower with pressure gauges, controls, and particulate filter housed in a garden-style shed. A discharge pipe extends from the blower shed to above the roofline of the Capuano Center. GEI began operating the SSDS on February 1, 2007.

The system does not include off-gas treatment. Based upon the measured flow rate and VOC concentrations, the annual discharge rate of VOCs from the system has been significantly less than 100 lbs per year; therefore, no off-gas treatment is required per MassDEP Policy No. WSC-94-150: "Off-gas Treatment of Point-Source Remedial Air Emissions," dated 1994.

### **3.2 Remedial Objectives**

The design objectives of the Capuano Center remedial system were to:

- Eliminate or mitigate, to the extent feasible, the potential soil vapor migration pathway to indoor air.
- Achieve a condition of NSR for occupants of the Capuano Center.

The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS influences the southern portion of the east wing. In conjunction with the physical sealing of the slab/wall joint, this indicates the soil vapor migration pathway to indoor air is controlled by the system.

### **3.3 Inspection and Monitoring**

The system has been monitored in accordance with the requirements and schedule in the Phase IV RIP, and in accordance with the requirements and schedule presented in subsequent Phase IV Status Reports, and the Phase IV FIR/Phase V ROS.

Monitoring of system parameters at the headers (flow rate, vacuum, and photoionization detector [PID] readings) is conducted every month, while vacuum and PID readings at indoor





and outdoor monitoring points are collected quarterly. Inspection and monitoring at the Capuano Center was performed five times from December 2013 to May 2014. A summary of monitoring activities conducted during this reporting period is provided in Table 3-1 and the Field Monitoring Forms are provided in Appendix E.

### **3.4 Performance Efficiency and Effectiveness**

The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS influences the southern portion of the east wing. In conjunction with the physical sealing of the slab/wall joint, this indicates the soil vapor migration pathway to indoor air is controlled by the system. GEI has completed 23 rounds of indoor air sampling in the Capuano Center. The results of each round of sampling show that the system is meeting remedial design objectives (Table 3-2). Based on the indoor air testing results, the soil vapor migration pathway to indoor air has been eliminated and a condition of NSR has been achieved for occupants of the Capuano Center. GEI has discontinued indoor air sampling and will rely on monitoring of operating parameters for the system to confirm continued effectiveness.

### **3.5 Management of Waste Materials**

Infrequently, condensate in system piping may accumulate in the subsurface collection header pipes, the cleanout drain for the header pipes, or the moisture separator installed as part of the blower assembly. If observed, SSDS condensate is drained from the moisture separator or pumped from the headers into the cleanout, which drains into the subsurface at the property.

### **3.6 System Modifications**

No modifications were made to the system during the reporting period.

### **3.7 Future Phase V Activities**

Based on indoor air testing results, a condition of NSR has been achieved for occupants of the Capuano Center and the system is achieving the remedial design objectives. GEI will continue to monitor operational parameters and sub-slab conditions for the system (e.g., flow rate, vacuum) on a monthly basis, and collect readings from all indoor and outdoor monitoring points quarterly, to confirm ongoing system performance. During monitoring events, GEI will also perform maintenance tasks, which may include documenting whether the blower is operating normally and if alarm conditions are present, draining accumulated water from the moisture separator or collection headers, changing the filter element for the blower, changing the batteries in the auto-dialer, and correcting any deficiencies observed during routine inspection of system components.



In August and October 2013, GEI performed pilot testing of the SSDS to evaluate replacing the current blower setup with one or more radon fans. Reconfiguration of the SSDS would reduce the complexity of the system and simplify system maintenance, while maintaining remedial objectives. Pilot testing indicates that a system modification with three radon fans installed on three dedicated ventilation pipes will provide similar or slightly improved sub-slab vacuum throughout the target zone. Based on communications between GEI and the Capuano Center, the school is amenable to the proposed reconfiguration. During the summer of 2014, GEI intends to implement the system modifications. In addition, during the scheduled shutdowns associated with the system modifications, GEI intends to perform indoor air testing to evaluate indoor air quality while the system is passively venting sub-slab vapors.

The MCP amendments effective June 20, 2014 require that remote telemetry be installed on active EPMs to provide MassDEP and the building owner notification of system shutdowns. The system at the Capuano Center currently has telemetry that provides notification to GEI. During the summer of 2014, GEI will also modify the existing telemetry to provide the newly required shutdown notifications.





## 4. Residential and Commercial Properties Phase IV Activities

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### 4.1 EPMM Installation

Through June 15, 2014, EPMMs had been installed at 21 residential and commercial properties. EPMMs were also installed at 50 Tufts Street, 60 Tufts Street, and the Capuano Center. The EPMMs at 50 Tufts Street, 60 Tufts Street, and the Capuano Center are discussed separately in this report.

Between December 16, 2013 and June 15, 2014, one new EPMM was installed at 34 Knowlton Street. Fig. 4-1 shows the buildings with EPMMs installed. Table 4-1 presents the as-built design information for each installed EPMM.

Prior to installing EPMMs in occupied residences, GEI installed indoor air purifiers with activated carbon filters as a mitigation measure. At residences where the concentrations of chlorinated VOCs constituted a condition of NSR, UniFirst left the air purifiers, effectively giving them to the property owners.

The EPMM designs are categorized as Option 1, Option 2, or Option 3, as conceptually defined below:

- Option 1 – SSDS: This option includes the installation of one or more sub-slab vapor extraction points and a collection piping network connected to an electric fan located outside the building envelope. The fan is equipped with a condensate bypass drain and the fan exhaust is discharged above the eave line of the roof. To date, no SSDSs (except for the system at the Property) require off-gas treatment. This option is installed in buildings with adequate sub-slab air flow and a competent concrete slab, or those properties where vapor barrier and venting systems are infeasible.
- Option 2 – Vapor Trench: The vapor trench option consists of a sub-slab venting system installed in a shallow trench around the interior basement perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the slab and stucco walls. The trench is backfilled with crushed stone and finished with approximately three inches of new concrete to meet the existing slab surface. This option is installed in buildings with poor sub-slab air flow, a competent concrete slab, and a fieldstone and/or brick foundation. Sub-slab vapors are vented through a piping network that exits the building envelope at the sill elevation and terminates above the eave line of the roof.



- Option 3 – New Slab: The new slab installation option consists of installing a new concrete slab, a sub-slab vapor barrier, and a floor venting system; applying cement stucco to the walls; and applying an epoxy vapor barrier to the new slab and stucco walls. This option is installed in buildings with poor sub-slab air flow, an incompetent concrete slab, and a fieldstone and/or brick foundation. As with Option 2, sub-slab vapors are vented through a piping network that exits the building envelope at the sill elevation and terminates above the eave line of the roof.

The decision-making process for selecting a conceptual design based on Site-specific conditions is illustrated in Fig. 4-2. Table 4-1 identifies the design option for each EPMM currently installed and the primary engineering components of each.

#### **4.1.1 Remedial Objectives**

The design objectives of the EPMMs were to:

- Eliminate or mitigate, to the extent feasible, the potential soil vapor migration pathway to indoor air in residential buildings.
- Achieve a condition of NSR for occupants of the residence or commercial building.

#### **4.2 Option 1 EPMMs**

Option 1 EPMMs consist of active sub-slab depressurization achieved by the installation of a radon fan and associated network of piping. Several of the Option 1 EPMMs were originally installed as Option 2 or Option 3 EPMMs; however, the concentrations of PCE measured in the post-installation indoor air did not constitute a condition of NSR, and a fan was installed. Option 1 EPMMs have been installed at the following 10 properties:

- 35-37 Knowlton Street (originally Option 3)
- 31-33 Knowlton Street
- 13 Morton Street
- 18 Morton Street
- 23 Tufts Street
- 103 Washington Street
- 95 Franklin Street (originally Option 2)
- 9 Knowlton Street
- 13 Knowlton Street
- 27 Tufts Street (originally Option 3)





Prior to the MCP amendments effective June 20, 2014, these properties could not achieve a Permanent Solution because of the operation of an active system. Based on the MCP amendments, these properties can now achieve regulatory closure with a Permanent Solution with Conditions Partial Statement. The condition of the Permanent Solution Statement will be operation and maintenance of the active EPMM in accordance with an AUL. GEI is re-evaluating procedural options for regulatory closure at these properties based on the new MCP provisions applicable to active EPMMs.

#### **4.2.1 Operation and Monitoring**

To confirm the performance of an EPMM, indoor air samples are collected shortly after installation is complete. For Option 1 EPMMs, following the post-installation indoor air sampling, indoor air samples are collected one time per winter for two consecutive years. Inspection and monitoring also includes measuring VOCs at sub-slab sampling points with a PID, collecting pressure measurements using a manometer, and inspecting system components. If needed, repairs or modifications will be scheduled.

A summary of OMM activities performed for Option 1 EPMMs during this reporting period is presented in Table 4-2. No post-EPMM indoor air sampling was conducted during this reporting period. EPMM Inspection Forms are in Appendix F.

A post-EPMM inspection was not performed at 13 Morton Street during the reporting period. The owner was unresponsive to access requests to perform the inspection. GEI will continue to make access attempts to inspect the EPMM.

In June 2013, communications with the tenant of 103 Washington Street identified that the tenant had turned off the SSDS fans. Subsequent requests to re-activate the fans to the tenant and owner of the building were unsuccessful. In January 2014, GEI visited 103 Washington Street and the tenant agreed to re-activate the fans pending a safety evaluation. In March 2014, UniFirst's contractor performed minor repair of one of the two SSDS fans at the property, and the tenant re-activated the fans. In June 2014, GEI attempted to schedule an annual EPMM inspection at 103 Washington Street. The tenant indicated to GEI staff that he again de-activated the SSDS fans at that property due to purported safety concerns associated with one of the fans mounted to the system ventilation piping on the roof. GEI will continue communications with the tenant at 103 Washington Street to repair and re-activate the fans.

#### **4.2.2 Efficiency and Effectiveness**

For residential buildings, the primary goals for EPMM performance are the reduction of chlorinated VOC concentrations in indoor air to below laboratory reporting limits to the extent feasible, and to achieve a condition of NSR. For commercial buildings, the standard





for successful EPMM performance is the reduction of chlorinated VOC concentrations in indoor air to that which constitutes a condition of NSR.

Through June 15, 2014, the results of post-EPMM installation indoor air sampling indicate that each of the Option 1 EPMMs installed or activated at residential and commercial properties has achieved the remedial objectives.

#### **4.2.3 System Maintenance and Modifications**

One of the SSDS fans at 103 Washington Street was repaired in March 2014. However, the tenant has expressed additional concerns regarding the fan. GEI will work with UniFirst's contractor to respond to the tenant's concerns.

#### **4.2.4 Management of Waste Materials**

No waste materials associated with Option 1 EPMMs were generated during the reporting period.

### **4.3 Option 2 and 3 EPMMs**

Option 2 and 3 EPMMs consist of passive vapor barriers and do not require mechanical operation or maintenance. Option 2 or 3 EPMMs have been installed at the following 11 properties:

- 95R Franklin Street (Option 2)
- 12 Morton Street (Option 3)
- 11 Morton Street (Option 2)
- 4 Morton Street (Option 3)
- 10 Morton Street (Option 3)
- 91-93 Franklin Street (Option 3)
- 17 Knowlton Street (Option 3)
- 32 Knowlton Street (Option 3)
- 34 Knowlton Street (Option 3)
- 19-19A Morton Street (Option 3)
- 166-168 Glen Street (Option 3)

In accordance with the MCP (310 CMR 40.1000) prior to the June 20, 2014 MCP amendments, regulatory closure was achieved with a Class A-3 Response Action Outcome Partial (RAO-P) Statement for several properties with an Option 2 or 3 EPMM. The properties that have achieved a Class A-3 RAO-P are presented in Fig. 4-3. In the amended



MCP, the term “Response Action Outcome” has been replaced with “Permanent or Temporary Solution.” Subsequent regulatory closure for individual properties with Option 2 or 3 EPMMs will be achieved with Permanent Solution with Conditions Partial Statements. The condition of the Permanent Solution with Conditions Partial Statement will be maintenance of the passive EPMM in accordance with an AUL.

#### **4.3.1 34 Knowlton Street**

Between December 2013 and March 2014, GEI observed the installation of an Option 3 EPMM at 34 Knowlton Street. The EPMM was installed as part of construction of a two-family residential building. The EPMM consists of a sub-slab passive venting system and sub-slab vapor barrier. During the EPMM installation, smoke testing was performed to confirm the effectiveness of the vapor barrier. A detailed description of the EPMM design was submitted to MassDEP with the RAM Status Report No. 1 for 34 Knowlton Street on April 4, 2014, and is not re-presented in this report.

#### **4.3.2 Operation and Monitoring**

To confirm the performance of an EPMM, indoor air samples are collected shortly after installation is complete. For Option 2 and 3 EPMMs, following the post-installation indoor air sampling, indoor air samples are collected two times per year (including one winter sample) for two consecutive years. The samples are analyzed for Site-specific chlorinated VOCs. During indoor air sampling, the condition of the EPMM will be inspected and, if needed, repairs or modifications will be scheduled.

A summary of OMM activities performed for Option 2 and 3 EPMMs during this reporting period is presented in Table 4-2. EPMM Inspection Forms are in Appendix F. Post-EPMM indoor air sampling was not conducted at Option 2 or 3 EPMMs during this reporting period.

A post-EPMM inspection was not performed at 4 Morton Street during the reporting period. The owner was unresponsive to access requests to perform the inspection. GEI will continue to make access attempts to inspect the EPMM.

The EPMM installation at 34 Knowlton Street was completed in June 2014. Results of post-EPMM installation indoor air sampling at 34 Knowlton Street will be included in the next status report.

#### **4.3.3 Efficiency and Effectiveness**

For residential buildings, the primary goals for EPMM performance are the reduction of chlorinated VOC concentrations in indoor air to below laboratory reporting limits to the extent feasible, and to achieve a condition of NSR. For commercial buildings, the standard





for successful EPMM performance is the reduction of chlorinated VOC concentrations in indoor air to that which constitutes a condition of NSR.

Through June 15, 2014, the results of post-EPMM installation indoor air sampling indicate that 10 of the 11 Option 2 or 3 EPMMs currently installed at residential properties have achieved the remedial objectives. As discussed above, the results of post-EPMM installation indoor air sampling at 34 Knowlton Street will be included in the next status report.

#### **4.3.4 System Maintenance and Modifications**

No system maintenance or modification was performed on existing Option 2 or 3 EPMMs during this reporting period.

#### **4.3.5 Management of Waste Materials**

No waste materials associated with Option 2 or 3 EPMMs were generated during the reporting period.

### **4.4 Activity and Use Limitations**

It is anticipated that AULs will be recorded for each property where an EPMM is installed. No AULs were recorded during this reporting period.

### **4.5 Permanent Solution Statements**

An evaluation of the MNA program indicates that the groundwater plumes are stable, overall groundwater concentrations of chlorinated VOCs are not increasing, and natural attenuation processes are occurring at the Site which will likely reduce contaminant concentrations in groundwater over time. Previous investigations have also demonstrated that soil vapor plumes are stable. Visible NAPL has not been observed at the Site, and any DNAPL that may be present is not migrating and exists in a stable configuration. The Phase III demonstrated that it is not feasible to eliminate DNAPL at the Site. There are no unpermitted releases of OHM at the Site. Accordingly, all sources of OHM at the Site have been eliminated or controlled to the extent feasible.

The Method 3 Risk Characterizations prepared for the Site have demonstrated that a condition of NSR exists at individual properties at the Site, with the exception of 9, 17, and 19 Tufts Street and 105-107 Washington Street. Owners of these properties have denied GEI access to enter their residences and install an EPMM, despite numerous oral and written requests from both GEI and MassDEP. Therefore, implementation of remedial systems to achieve a condition of NSR on these properties is infeasible.



Based on a demonstration of source control at the Site, and a condition of NSR at individual properties, many of the individual properties are eligible for a Permanent Solution Partial Statement in accordance with the MCP (310 CMR 40.1000). The filing of a Permanent Solution Partial Statement for an individual property documents the achievement of regulatory closure under the MCP. Therefore, the Phase V provisions do not apply to properties for which an RAO-P or Permanent Solution Partial Statement has been submitted.

The properties that have achieved a Permanent Solution Partial Statement are shown on Fig. 4-3. A summary of the different classes of Permanent Solution Partial Statements to be submitted in the future for properties at the Site, depending on the property-specific conditions and the type of mitigation, if any, is discussed below.

Active operation and maintenance is required for Option 1 EPMMs. Based on the MCP amendments dated June 20, 2014, a Permanent Solution with Conditions can be achieved for properties with an Option 1 EPMM. GEI is re-evaluating procedural options for submitting Permanent Solution with Conditions Partial Statements for Option 1 EPMMs based on the new MCP provisions for active EPMMs.

#### **4.5.1 Permanent Solution without Conditions**

GEI will prepare a Permanent Solution without Conditions Partial Statement for residences where multiple lines of evidence have demonstrated the absence of a soil vapor migration pathway to indoor air and an EPMM is not required. GEI will also prepare Permanent Solution without Conditions Partial Statements for residences where a Method 3 Risk Characterization, based on multiple rounds of sampling, indicated that concentrations of chlorinated VOCs in indoor air constitute NSR, and the feasibility evaluation demonstrated that installation of an EPMM was infeasible. In addition, GEI will prepare a Permanent Solution without Conditions Partial Statement for the portion of the Site occupied by public right-of-ways. The properties that have achieved a Permanent Solution without Conditions Partial Statement are shown in Fig. 4-3.

#### **4.5.2 Permanent Solution with Conditions**

GEI will attempt to record an AUL at each property with an Option 1, 2 or 3 EPMM to maintain the integrity of the EPMM. After an AUL is recorded, GEI will prepare a Permanent Solution with Conditions Partial Statement for residential properties with Option 1, 2 or Option 3 EPMMs where 2 years of post-installation indoor air samples have demonstrated that the EPMM is effective. Following the post-installation indoor air sampling, GEI will continue annual inspections of Option 1, 2 and 3 EPMMs as provided for in the Phase IV RIP. The properties that have achieved a Permanent Solution with Conditions Partial Statement are shown in Fig. 4-3. If a property owner does not sign the AUL, inspections will continue as Phase V activities.





## **4.6 Future Phase V Activities**

### **4.6.1 EPMM Operation and Monitoring**

The results of post-EPMM installation indoor air sampling indicate that each of the Option 1, 2, or 3 EPMMs installed prior to 2014 have achieved the remedial objectives. A new EPMM installation was completed at 34 Knowlton Street in June 2014; however, post-installation indoor air sampling was not conducted during this reporting period. Results of post-EPMM installation indoor air sampling at 34 Knowlton Street will be included in the next status report.

GEI will continue to conduct annual OMM activities for installed EPMM where sufficient indoor air sampling has been conducted, but not repeat indoor air testing, to confirm it is achieving the remedial design objectives.

GEI does not anticipate the installation of new EPMMs. However, if a new EPMM is installed, GEI will continue the operation and monitoring program outlined in Section 4.2 and Section 4.3.

### **4.6.2 EPMM Modifications**

The MCP amendments effective June 20, 2014, require that remote telemetry be installed on active EPMMs to provide MassDEP and the building owner with notification of system shutdowns. During the next reporting period, GEI will evaluate options for installing telemetry at each of the Option 1 EPMMs listed in Section 4.2.

### **4.6.3 EPMM Closure Sampling**

Based on focused Method 3 risk characterization calculations performed by ARCADIS, which incorporate pre-EPMM indoor air sampling results, the Option 1 EPMM at 31-33 Knowlton Street and 13 Knowlton Street may not be required to maintain a condition of NSR. This is a result of the updated MassDEP toxicity for PCE issued in January 2014. In accordance with MassDEP Guidance "*WSC No. 11-435: Interim Final Vapor Intrusion Guidance*," dated December 2011 and revised March 7, 2013 (2011 VI Guidance, revised 2013), during the next reporting period GEI will evaluate an indoor air sampling program to demonstrate that the Option 1 EPMM at these properties are no longer required to mitigate the vapor intrusion pathway.

### **4.6.4 Installation of New EPMMs**

GEI does not anticipate installation of any new EPMMs during the next reporting period.





#### **4.6.5 AULs and Permanent Solutions**

As discussed in Section 4.5, the source of contamination at the Site has been controlled. If 2 years of post-installation indoor air sampling at a property demonstrate that an EPMM continues to achieve the remedial objectives then that property is eligible for a Permanent Solution with Conditions Partial Statement.

GEI anticipates recording AULs for each property where an EPMM is installed and a Permanent Solution with Conditions Partial Statement is to be issued.

Once the AULs are recorded, GEI will prepare a Permanent Solution with Conditions Partial Statement for the properties with EPMMs. As discussed in Section 4.5.1, GEI will prepare Permanent Solutions without Conditions Partial Statements for those properties that did not require mitigation.



## 5. 60 Tufts Street

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### 5.1 Background

60 Tufts Street is a 17-unit condominium building adjacent to the Property. The remedial system at 60 Tufts Street was designed and constructed as an SSDS. The SSDS includes 12 vertical sub-slab extraction points and 2 horizontal foundation wall extraction points connected to 2 collection headers and a 5-horsepower regenerative blower with pressure gauges, controls, and particulate filter housed in a locked metal enclosure. GEI began operation of the SSDS on April 24, 2009. A discharge pipe extends from the blower through a parking garage deck and discharges above the roofline of the building.

The system does not include off-gas treatment. Based upon the measured flow rate and VOC concentrations, the annual discharge rate of VOCs from the system will be significantly less than 100 lbs per year; therefore, no off-gas treatment is required per MassDEP Policy No. WSC-94-150.

### 5.2 Remedial Objectives

The objectives of the SSDS at 60 Tufts Street are to:

- Eliminate or mitigate, to the extent feasible, the potential soil vapor migration pathway to indoor air.
- Achieve a condition of NSR for occupants of the condominium building.

### 5.3 Inspection and Monitoring

The system has been monitored in accordance with the requirements and schedule in the Phase IV RIP. Operational parameters for the system (e.g., flow rate, vacuum) are monitored monthly and indoor air quality in Units 1, 4, and 5 and sub-slab conditions were monitored for 2 years following installation of the EPMM. The Phase IV RIP provides for ongoing annual indoor air sampling. However, post-EPMM indoor air sampling and visual inspections have confirmed that the EPMM at 60 Tufts Street has been constructed in accordance with the Phase IV RIP, and has achieved the remedial design objectives. Accordingly, GEI will not conduct additional indoor air testing, but will continue to monitor operational parameters of the system. A summary of monitoring activities conducted during this reporting period is provided in Table 5-1 and Field Monitoring Forms are provided in Appendix E.





## **5.4 Performance Efficiency and Effectiveness**

The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS influences nearly the entire floor slab area. Indoor air samples have been collected in Units 1, 4, and 5, which are the units closest to the ground floor, for 2 years since EPMM installation. The indoor air testing results indicate that a condition of NSR has been achieved for building occupants at 60 Tufts Street and the soil vapor migration pathway to indoor air has been mitigated to the extent feasible.

## **5.5 Management of Waste Materials**

Infrequently, condensate in system piping may accumulate in the cleanout drains for the sub-surface header pipes, or in the moisture separator installed as part of the blower assembly. If observed, the liquid will be drained and dispensed to the bare ground surface at 60 Tufts Street so that it can infiltrate into the subsurface within the Site boundary.

## **5.6 System Modifications**

No modifications were made to the system during the last reporting period.

## **5.7 Future Phase V Activities**

The system is achieving the remedial design objectives and OMM activities will continue. To confirm system performance, GEI will continue to monitor operational parameters and sub-slab conditions for the system (e.g., flow rate, vacuum) on a monthly basis. During monthly monitoring events, GEI will also perform maintenance tasks which may include documenting that the blower is in operation, draining accumulated water from the moisture separator or collection headers, changing the filter element for the blower, changing the batteries in the auto-dialer, and correcting any deficiencies observed during routine inspection of system components.

The MCP amendments effective June 20, 2014 require that remote telemetry be installed on active EPMMs to provide MassDEP and the building owner with notification of system shutdowns. The system at 60 Tufts Street currently has telemetry that provides notification to GEI. During the next reporting period, GEI will modify the existing telemetry at the 60 Tufts Street system to provide the required shutdown notification to MassDEP and the building owner.



## **6. 50 Tufts Street Property**

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### **6.1 Background**

The remedial system at the Property was originally designed and constructed as an SSDS that includes 22 sub-slab extraction points inside the building, a 15-horsepower regenerative blower with pressure gauges, controls, and particulate filter, and three 2,000-lb activated carbon adsorbers operated in series for off-gas treatment. As part of the SSDS installation, the building slab was sealed to minimize vapor transmission through the slab. The cracks and joints in the building slab were filled with flexible sealant and a two-part epoxy coating was applied to the surface of the slab. GEI began operating the SSDS on April 30, 2007.

In July and August 2007, SVE components were added to the system as part of the CRA to address residual VOCs in soil. The SVE system includes seven SVE points installed below the pavement in the north and south parking lots on the Property. The SSDS and the SVE system rely upon shared equipment, including the piping manifold, blower assembly, and off-gas treatment units. GEI began operating the SVE system on August 22, 2007.

### **6.2 Remedial Objectives**

The design objectives of the combined SSDS/SVE system were to:

- Eliminate or mitigate, to the extent feasible, the soil vapor migration pathway to indoor air.
- Achieve a condition of NSR for a commercial full-time worker.
- Reduce the mass of contaminants in the vadose zone.
- Control the potential migration of soil vapor from the Property to the 60 Tufts Street property.

### **6.3 Inspection and Monitoring**

The system has been monitored in accordance with the requirements and schedule in the Phase IV RIP. Operational parameters for the system (e.g., flow rate, vacuum, off-gas treatment efficiency) are monitored monthly. GEI also measures the vapor pressure of sub-slab extraction points and monitoring points periodically. GEI uses these sub-slab pressure measurements to confirm system effectiveness. The pipe and hose connections on the pressure side of the blower are examined during monitoring visits for potential leaks. Leaks, if encountered, are corrected immediately. Carbon change-outs are scheduled based on carbon tank monitoring data in order to maximize VOC adsorption while maintaining





compliance with regulatory requirements regarding discharge of VOCs to the atmosphere. Procedures to address potential spills of spent activated carbon during carbon change-outs have been developed and are presented in the system OMM Plan provided in the Phase IV RIP.

Based on monitoring for off-gas treatment efficiency, the system off-gas for the combined SSDS/SVE system was within permissible limits during the reporting period. A summary of monitoring activities during this reporting period is provided in Table 6-1, and Field Monitoring Forms are provided in Appendix E.

In January 2014, MassDEP requested an audit inspection of the 50 Tufts Street system. The audit inspection was performed with Jennifer Wang of MassDEP, Ileen Gladstone of GEI, and other GEI staff on January 31, 2014. MassDEP cited no significant system issues during the audit inspection, and identified no violations in a Notice of Audit Findings letter dated February 10, 2014. However, during the audit inspection, MassDEP verbally expressed a concern that system monitoring performed with a PID using a 10.6 electron volt (eV) lamp may not detect constituents with higher ionization potentials, and therefore overestimate the system treatment efficiency. TCA was the primary contaminant of concern cited during the inspection audit that would not be captured using a 10.6 eV lamp. MassDEP requested that GEI perform future system monitoring with a PID equipped with a 11.7 eV lamp.

On February 10, 2014, GEI performed follow-up system monitoring with two PIDs; one equipped with a 10.6 eV lamp and one equipped with a 11.7 eV lamp. During this monitoring event, we also collected samples of the treatment system influent and effluent air using summa canisters. The samples were submitted to Accutest Laboratories, Inc. (Accutest) of Marlborough, Massachusetts for laboratory analysis by U.S. Environmental Protection Agency (EPA) Method TO-15 with the following modified list of analytes:

- 1,1-Dichloroethane
- 1,1-Dichloroethylene (1,1-DCE)
- trans-1,2-Dichloroethylene
- cis-1,2-Dichloroethylene
- 1,1,1-Trichloroethane (TCA)
- 1,1,2,2-Tetrachloroethane
- 1,1,2-Trichloroethane
- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)
- Vinyl Chloride

System influent and effluent testing results, including the historic soil vapor testing results for the system, are summarized in Table 6-2. The laboratory data reports are in Appendix D.

Based on the summa testing results, PCE is the primary contaminant in the treatment system (almost 98% of system influent mass), and TCA is not a significant component of the system influent (approximately 0.65% of system influent mass). PCE is effectively monitored with a 10.6 eV lamp, and the historic PID screening and treatment efficiency monitoring performed





at the 50 Tufts Street system with a 10.6 eV lamp correlates well with the summa testing results, thus confirming historically reported treatment efficiency of greater than 95%. TCA is not a significant component of the system influent, and system monitoring with a 10.6 eV lamp will not overestimate system treatment efficiency. In addition, 11.7 eV lamps have a very short lifespan (approximately 3 months). Therefore, GEI will continue to use a 10.6 eV lamp during PID screening for future system monitoring.

## **6.4 Performance Efficiency and Effectiveness**

The SSDS monitoring data show that the sub-slab vacuum field generated by the SSDS covers most of the building slab area. In conjunction with the physical sealing of the slab, this indicates the soil vapor migration pathway to indoor air is being mitigated by the system. Based on indoor air testing results collected since the combined system has been in operation, a condition of NSR for full-time commercial workers has been achieved for the building at the Property.

The SVE system monitoring data show that vacuum influence from the SVE points in the south parking lot extends approximately 30 feet south of the building and from the SVE points in the north parking lot extends onto 60 Tufts Street.

Three influent and two effluent samples from the carbon treatment system were collected and compared with PID field measurements to estimate the total mass of VOCs removed from soil vapor since April 30, 2007. Monitoring data from both the SSDS and SVE components through May 21, 2014 show that approximately 8,140 lbs (approximately 604 gallons) of VOCs have been removed from the vadose zone at the Property (Fig. 6-1). Beginning with the next reporting period, GEI will use the system influent and effluent sampling results from February 2014 to estimate the total mass of VOCs removed from soil vapor based on PID field measurements. Using the more recent influent and effluent sampling results will provide a more accurate estimate of mass removal under current system conditions.

## **6.5 Management of Waste Materials**

Infrequently, condensate in system piping may accumulate in the moisture separator installed as part of the blower assembly. If observed, the liquid is drained from the moisture separator and dispensed to the bare ground surface at the Property so that it can infiltrate into the subsurface within the Site boundary.

Based on the previous quantities of spent carbon generated by the system, a 2009 Hazardous Waste Report was submitted to MassDEP on March 1, 2010, identifying the Property as a Large Quantity Generator (LQG) facility. GEI operated the system as a LQG in 2013.



Remediation waste generated during this reporting period consisted of 5,850 lbs of spent activated carbon. The carbon change-out occurred on June 2, 2014 and the spent carbon was delivered to Rineco Chemical Industries, Inc. (Rineco) of Benton, Arkansas for use by cement kilns as a waste-derived fuel. Disposal documentation for this reporting period is in Appendix G.

## **6.6 System Modifications**

No other modifications were made to the system during the last reporting period.

## **6.7 Future Phase V Activities**

The system is achieving the remedial design objectives. Phase V ROS OMM activities will continue in accordance with the requirements and schedule set forth in the Phase IV RIP.

The MCP amendments effective June 20, 2014, require that remote telemetry be installed on active EPMMs to provide MassDEP and the building owner with notification of system shutdowns. The system at 50 Tufts Street currently has telemetry that provides notification to GEI, on behalf of UniFirst, the building owner. During the next reporting period, GEI will modify the existing telemetry at the 50 Tufts Street system to provide the required shutdown notification to MassDEP.





## 7. Monitored Natural Attenuation

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### 7.1 MNA Program Objectives

MNA is part of the remedial strategy to reach a Permanent Solution for the Site. GEI has implemented an MNA program to confirm on-going natural attenuation is occurring at the Site. The MNA program is described in the MNA OMM Plan presented in the Phase IV RIP. The primary elements of the MNA program include:

- Plume Stability Monitoring: A groundwater sampling plan to monitor overburden and bedrock groundwater plume concentrations through time to confirm that the groundwater plumes are stable, and that overall groundwater concentrations of chlorinated VOCs are not increasing.
- Natural Attenuation Evaluation: An evaluation of overburden and bedrock groundwater plume concentrations through time for indications of the presence and rate of natural attenuation processes.

### 7.2 MNA Activities

GEI conducted the following MNA activities during the reporting period:

- Groundwater Level Measurements: GEI measured groundwater levels at monitoring wells shown in Table 7-1.
- Groundwater Sampling: GEI collected groundwater samples from 20 monitoring wells between April and June 2014, and submitted them for chemical testing for VOCs by EPA Method 8260B. Groundwater samples from a subset of wells were also analyzed for natural attenuation parameters. The sampling locations are shown in Fig. 2-1, the chemical testing results are shown in Table 2-2, and the laboratory data reports are in Appendix C.

GEI evaluated the groundwater chemical testing results collected during MNA activities to update and supplement the plume stability monitoring and natural attenuation evaluation. During this reporting period, annual groundwater sampling was conducted by GEI at 20 monitoring wells shown in Fig. 2-1.

Based on an analysis of the Mann-Kendall statistical trend test results, which incorporates the additional groundwater testing data, the PCE, TCE, and TCA groundwater plumes continue to be stable.



GEI has been monitoring concentration fluctuations in groundwater PCE concentrations in monitoring wells MW122 and MW112A, and TCE concentrations in monitoring wells MW118D and MW121D. The concentrations decreased slightly in MW122, MW112A, and MW121D, and increased slightly in MW118D, during the last reporting period. These results are within a range of fluctuation that is consistent with continuing plume stability, particularly when considered in context with prior groundwater results from all monitoring wells. GEI will perform additional groundwater sampling of these monitoring wells in fall 2014.



## **8. Remedial Monitoring Report No. 21**

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Remedial Monitoring Report No. 21, documenting OMM activities for active remedial systems at the Site, is presented in the BWSC-108A and 108B Transmittal Forms in Appendix A.





## 9. References

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- GEI (2007). Monthly Remedial Monitoring Report No. 7A, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated November 8, 2007.
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- GEI (2009). IRA Completion Report and Remedial Monitoring Report (RMR) No. 11, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated May 11, 2009.
- GEI (2010). Phase IV Status Report No. 1 and Remedial Monitoring Report No. 12, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 8, 2009.
- GEI (2010). Phase IV Status Report No. 2 and Remedial Monitoring Report No. 13, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 4, 2010.





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GEI (2013). Phase V Status Report No. 3 and Remedial Monitoring Report No. 18, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 8, 2013.

GEI (2013). Phase V Status Report No. 4 and Remedial Monitoring Report No. 19, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated August 2, 2013.

GEI (2014). Phase V Status Report No. 5 and Remedial Monitoring Report No. 20, 50 Tufts Street, Somerville, MA, RTN 3-23246, dated February 10, 2014.





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Table 2-1. Chemical Testing Results - Kleinfelder Soil  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 50 Tufts Street / Washington Street Area  
 Somerville, Massachusetts

Analyte	Method	Units	KE-202-WS-D		KE-202-WS-S	KE-204-WS		KE-205-WS		KE-206-WS			KE-207-WS	KE-208-WS	KE-209-WS	KE-210-WS		KE-211-WS		
			Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:	Sample Name:
			19 - 21	24 - 26	14 - 16	0 - 1	18 - 20	0 - 2	14 - 16	0 - 10	10 - 10.5	17 - 19	14 - 16	8 - 8.5	15 - 17	6 - 6.5	15 - 17	0 - 6	24 - 25	
Location Name: Sample Name: Sample Depth (ft): Sample Date:			3/25/14	3/25/14	3/25/14	3/25/14	4/2/14	4/1/14	4/1/14	3/25/14	3/25/14	4/3/14	3/31/14	3/25/14	3/26/14	3/26/14	4/7/14	3/26/14	3/29/14	
<b>Volatile Organic Compounds (VOCs)</b>			SW 846 8260C	mg/kg						NT										
1,1-Dichloroethane			< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	0.0092	0.038	< 0.0023	< 0.0015		
1,1-Dichloroethylene			< 0.0031	< 0.0028	< 0.0027	< 0.0033	< 0.0049	< 0.0055	< 0.0045	< 0.0034	< 0.0059	< 0.0049	< 0.0034	< 0.0031	< 0.0055	0.033	< 0.0046	< 0.0031		
cis-1,2-Dichloroethylene			< 0.0015	0.0060	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	0.026	< 0.0016	0.039	< 0.0031	< 0.0023	< 0.0015		
trans-1,2-Dichloroethylene			< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	< 0.0017	< 0.0029	< 0.0025	< 0.0017	< 0.0016	0.0031	< 0.0031	< 0.0023	< 0.0015		
Methylene chloride			< 0.0077	< 0.0071	< 0.0067	< 0.0083	< 0.012	< 0.014	< 0.011	< 0.0084	< 0.015	< 0.012	< 0.0086	< 0.0078	0.015	< 0.016	< 0.011	< 0.0076		
Tetrachloroethylene (PCE)			< 0.0015	0.040	< 0.0013	< 0.0017	0.012	< 0.0027	< 0.0022	54	0.036	< 0.0025	45	< 0.0016	0.048	5.0	0.065	< 0.0015		
1,1,1-Trichloroethane			< 0.0015	< 0.0014	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	0.0064	< 0.0029	< 0.0025	< 0.0017	< 0.0016	< 0.0028	0.035	0.0039	< 0.0015		
Trichloroethylene (TCE)			< 0.0015	0.0064	< 0.0013	< 0.0017	< 0.0024	< 0.0027	< 0.0022	0.026	< 0.0029	< 0.0025	0.019	< 0.0016	0.050	0.19	0.0041	< 0.0015		
<b>Semi-volatile Organic Compounds (SVOCs)</b>			SW-846 8270D	mg/kg																
Acenaphthylene			NT	NT	NT	NT	NT	NT	NT	0.31	NT	NT	NT	NT	NT	NT	NT	< 0.19		
Anthracene										0.27								< 0.19		
Benzo(a)anthracene										0.99								0.65		
Benzo(a)pyrene										2.3								0.66		
Benzo(b)fluoranthene										2.0								1.0		
Benzo(g,h,i)perylene										1.4								0.39		
Benzo(k)fluoranthene										0.59								0.41		
Chrysene										1.1								0.74		
Dibenz(a,h)anthracene										0.25								< 0.19		
Fluoranthene										1.4								1.0		
Indeno(1,2,3-cd)pyrene										1.5								0.43		
Naphthalene										0.22								< 0.19		
Phenanthrene										0.99								0.71		
Pyrene										1.5								0.96		
<b>Petroleum Hydrocarbons</b>			SW-846 8015C	mg/kg																
Diesel Range Organics			NT	NT	NT	NT	NT	NT	NT	66	NT	NT	NT	NT	NT	NT	NT	120	NT	
<b>Polychlorinated Biphenyls (PCBs)</b>			SW-846 8082A	mg/kg																
Aroclor-1248[1]			NT	NT	NT	NT	NT	NT	NT	< 0.12	NT	NT	NT	NT	NT	NT	NT	< 0.11	NT	
Aroclor-1260[1]										< 0.12								< 0.11	NT	
<b>TCLP Metals</b>			SW-846 6010C	mg/L																
Lead			NT	NT	NT	NT	NT	NT	NT	0.50	NT	NT	NT	NT	NT	NT	NT	NT	NT	
<b>Total Metals</b>			SW-846 6010C	mg/kg																
Antimony			NT	NT	NT	NT	NT	NT	NT	< 2.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	
Arsenic										11								14		
Barium										59								39		
Beryllium										0.76								NT		
Cadmium										0.63								1.3		
Chromium										24								20		
Lead										120								85		
Mercury										0.15								0.077		
Nickel										18								NT		
Vanadium										35								NT		
Zinc										96								NT		
<b>Other</b>			SM18-20 4500CLB																	
Chloride			NT	NT	NT	< 110	< 430	94	990	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	
Flashpoint			NT	NT	NT	NT	NT	NT	NT	> 212	NT	NT	NT	NT	NT	NT	NT	> 212	NT	
Percent Solids			83.5	77.5	96.5	89.0	88.5	90.6	79.4	84.2	84.2	89.8	80.3	90.1	87.7	88.4	88.5	90.0	87.3	
Specific Conductance			NT	NT	NT	NT	NT	NT	NT	4.9	NT	NT	NT	NT	NT	NT	NT	5.5	NT	
Sulfide			NT	1.3	NT	< 0.55	NT	NT	NT	< 20	NT	NT	NT	NT	NT	NT	NT	NT	NT	
Total Organic Carbon			NT	370	NT	66940	662	54020	600	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	

- General Notes:**
- Generally, only analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  - "<" = The analyte was not detected at a concentration above the specified reporting limit.
  - mg/kg = milligrams per kilogram.
  - mg/L = milligrams per liter.
  - \*F = degrees Fahrenheit.
  - µmhos/cm = micro ohms per centimeter.
  - NT = Not tested.





**Table 2-2. Summary of Groundwater Sampling Activities**  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
50 Tufts Street  
Somerville, Massachusetts

Sampling Event and Date	Sampled Locations	QA/QC Samples
Quarterly Groundwater Sampling 5/23/2006 5/24/2006 5/25/2006	SH-MW1, SH-MW2, SH-MW3, GEO-1, GEO-2, MW-1, MW-GEO-3, GEO-4, GEO-5, GEO-6, MW101, MW102 MW103, SH-4	NA Field Duplicate of GEO-3 NA
Groundwater Sampling 8/7/2006	MW103	NA
Quarterly Groundwater Sampling 10/4/2006 10/5/2006	SH-MW1, SH-MW2, SH-MW3, GEO-3 GEO-4, GEO-5 and GEO-1, GEO-2, MW101, MW102, MW103, MW104 and	Field Duplicate MW900 (GEO-3) NA
Quarterly Groundwater Sampling 1/16/2007 1/17/2007 1/18/2007	SH-MW1, SH-MW2, GEO-3, GEO-4, GEO-5, GEO-6, SH-MW3, MW-1, MW-3, GEO-1 and GEO-2 MW103, MW106, MW107, MW108, MW109, MW110 and	Field Duplicate MW900 (GEO-6) Field Duplicate MW800 (GEO-1) NA
Groundwater Sampling 2/20/2007 3/23/2007	MW113 and MW114 MW112A, MW115R AND MW116	NA NA
Quarterly Groundwater Sampling 4/12/07 4/13/07 4/16/07 5/23/07	SHMW1, SHMW3, GEO1, GEO2 and MW113 GEO3, MW101, MW102, MW103, MW104, MW106, SHMW2, GEO4, GEO5, GEO6, MW105, MW108, MW109, MWCS1	NA Field Duplicate MW900 (MW101) Field Duplicate MW901 (GEO6) NA
Quarterly Groundwater Sampling 7/18/2007  7/19/2007 7/20/2007	MW102, MW107, MW108, MW11, MW112A, MW113, MW114, MW115R, M2116 and MW117S  SHMW2, MW104, MW105, MW106, MW117T, MW117D, MW118S, MW118T and MW118D	Sample from MW102 was used for MS/MSD Field Duplicate MW900 (MW113) Field Duplicate MW901 (MW116)  NA NA
Groundwater Sampling 8/22/07 8/30/07	MW119S, MW119T, MW120S and MW120D MW118S, MW118T and MW118D	NA NA
Quarterly Groundwater Sampling 10/10/2007 10/11/2007 10/12/2007 10/15/2007 10/22/2007	MW102, MW105, MW106, MW107, MW108, MW111, MW112A, MW113, MW114, MW115 MW117T, MW117D, MW118S, MW118T, MW118D MW116, MW119S, MW119T, MW120S, MW120D, MW201, MW104, MW117S MW121S, MW121D	Sample from MW102 was used for MS/MSD Field Duplicate MW900 (MW113) NA Field Duplicate MW901 (MW116) NA NA

**General Notes:**

1. NA = not applicable.
2. QA/QC = quality assurance/quality check.
3. MS/MSD = matrix spike/matrix spike duplicate.
4. VOC = volatile organic compound.
5. All groundwater samples submitted for VOC testing. Selected samples collected in January 2007, April 2010, April 2011, April 2012, and April 2013 were also submitted for natural attenuation parameter testing.



**Table 2-2. Summary of Groundwater Sampling Activities**  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
50 Tufts Street  
Somerville, Massachusetts

Sampling Event and Date	Sampled Locations	QA/QC Samples
Quarterly Groundwater Sampling 1/9/2008	MW105, MW115	NA
1/10/2008	MW102, MW106, MW107, MW108, MW111, MW112A	Sample from MW102 was used for MS/MSD
1/11/2008	MW104, MW113, MW114, MW116, MW117S, MW118S, MW201, MW202	Field Duplicate MW900 (MW113) Field Duplicate MW901 (MW116)
1/15/2008	MW117T, MW117D, MW118T, MW119S, MW120S,	NA
1/16/2008	MW118D, MW119T	NA
1/17/2008	MW120D	NA
Groundwater Sampling 1/30/2008	MW122	NA
Quarterly Groundwater Sampling 4/15/2008	GEO-1, SH-MW3, MW3, MW104, MW113, MW116, MW201, MW202, MW203	Field duplicate MW113 (MW900) Field duplicate MW116 (MW901)
4/16/2008	MW117S, MW117T, MW117D, MW118T, MW118D,	NA
4/17/2008	MW102, MW106, MW107, MW108, MW109, MW111, MW112A, MW114, MW115R, MW120D, MW121S, MW105	Sample from MW102 was used for MS/MSD
4/18/2008		NA
Quarterly Groundwater Sampling 7/14/2008	MW105, MW112A, MW121S, MW121D, MW122	Field duplicate MW112A (MW900) Field duplicate MW121D (MW901)
7/15/2008	GEO-1, GEO-2, MW-3, MW104, MW118S, MW118T, MW118D, MW119S, MW119T, MW120S, MW120D, MW116, MW117S, MW117T, MW117D, MW118D	Sample from MW104 was used for MS/MSD
7/16/2008		NA
Quarterly Groundwater Sampling 10/21/2008	MW104, GEO-1, GEO-2 MW116, MW117S, MW117T, MW117D, MW118S, MW118T, MW118D, MW202, MW-3	Sample from MW104 was used for MS/MSD
10/22/2008	MW105, MW112A, MW119S, MW119T, MW120S, MW120D, MW121S, MW121D, MW122	Field duplicate MW112A (MW901) Field duplicate MW121D (MW900)
Quarterly Groundwater Sampling 4/15/2008	GEO-1, SH-MW3, MW3, MW104, MW113, MW116, MW201, MW202, MW203	Field duplicate MW113 (MW900) Field duplicate MW116 (MW901)
4/16/2008	MW117S, MW117T, MW117D, MW118T, MW118D,	NA
4/17/2008	MW102, MW106, MW107, MW108, MW109, MW111, MW112A, MW114, MW115R, MW120D, MW121S, MW105	Sample from MW102 was used for MS/MSD
4/18/2008		NA
Quarterly Groundwater Sampling 7/14/2008	MW105, MW112A, MW121S, MW121D, MW122	Field duplicate MW112A (MW900) Field duplicate MW121D (MW901)
7/15/2008	GEO-1, GEO-2, MW-3, MW104, MW118S, MW118T, MW118D, MW119S, MW119T, MW120S, MW120D, MW116, MW117S, MW117T, MW117D, MW118D	Sample from MW104 was used for MS/MSD
7/16/2008		NA
Quarterly Groundwater Sampling 10/21/2008	MW104, GEO-1, GEO-2 MW116, MW117S, MW117T, MW117D, MW118S, MW118T, MW118D, MW202, MW-3	Sample from MW104 was used for MS/MSD
10/22/2008	MW105, MW112A, MW119S, MW119T, MW120S, MW120D, MW121S, MW121D, MW122	Field duplicate MW112A (MW901) Field duplicate MW121D (MW900)

**General Notes:**

1. NA = not applicable.
2. QA/QC = quality assurance/quality check.
3. MS/MSD = matrix spike/matrix spike duplicate.
4. VOC = volatile organic compound.
5. All groundwater samples submitted for VOC testing. Selected samples collected in January 2007, April 2010, April 2011, April 2012, and April 2013 were also submitted for natural attenuation parameter testing.





**Table 2-2. Summary of Groundwater Sampling Activities**  
**Phase V Status Report No. 6 and Remedial Monitoring Report No. 21**  
**50 Tufts Street**  
**Somerville, Massachusetts**

Sampling Event and Date	Sampled Locations	QA/QC Samples
Quarterly Groundwater Sampling 1/12/2009	MW105, MW112A, MW121S, MW121D, MW122	Field duplicate MW112A (MW900) Field duplicate MW121D (MW901)
1/13/2009	GEO-1, GEO-2, MW117S, MW117T, MW117D, MW119S,	NA
1/14/2009	MW104, MW-3, MW116, MW118S, MW118T, MW118D	Sample from MW104 was used for MS/MSD
Quarterly Groundwater Sampling 4/13/2009	GEO-1, GEO-2, MW105, MW112A, MW119S, MW119T, MW121S, MW121D, MW122	Field duplicate MW121D (MW900) Field duplicate MW112A (MW901)
4/14/2009	MW-3, MW104, MW117S, MW117T, MW117D, MW118T,	NA
4/15/2009	MW102, MW116, MW118S	NA
Quarterly Groundwater Sampling 7/14/2009	MW105, MW112A, MW116, MW118T, MW121S, MW121D, MW202	Field duplicate MW121D (MW900) Field duplicate MW112A (MW901)
7/15/2009	GEO-1, GEO-2, MW-3, MW104, MW117S, MW117T, MS117D, MW118S, MW118D, MW119S, MW119T,	Sample from MW104 was used for MS/MSD
Quarterly Groundwater Sampling 10/14/2009	GEO-1, GEO-2, MW104, MW105, MW112A, MW116, MW117S, MW117D, MW118S, MW118D, MW121S,	Field duplicate MW112A (MW900) Field duplicate MW118D (MW901)
10/15/2009	MW119T, MW119S, MW120S, MW120D, MW118T	Sample from MW104 was used for MS/MSD
10/16/2009	MW117T, MW3	
Annual Groundwater Sampling 4/12/2010	MW104, MW105, MW112A, MW118S, MW118T, MW118D, MW121S, MW121D, MW122, MW202	Field duplicate MW112A (MW900) Sample from MW104 was used for MS/MSD
4/13/2010	GEO-1, GEO-2, SH-MW3, MW116, MW117S, MW117T, MW117D, MW119S, MW119T, MW120S, MW120D	Field duplicate MW116 (MW901)
Semi-Annual Groundwater Sampling 10/27/2010	MW112A, MW122	NA
Annual Groundwater Sampling 4/20/2011	MW105, MW112A, MW117D, MW118S, MW118T,	Field duplicate MW112A (MW900)
4/21/2011	GEO-2, SH-MW3, MW104, MW116, MW117S, MW117T	Field duplicate MW116 (MW901)
4/22/2011	GEO-1, MW119S, MW119D, MW120S, MW120D, MW202	Sample from MW104 was used for MS/MSD
Semi-Annual Groundwater Sampling 11/16/2011	MW112A, MW122	NA
Annual Groundwater Sampling 4/16/2012	SH-MW-3, MW112A, MW117S, MW117T, MW117D, MW118D, MW119S, MW119T, MW120S, MW120D, MW121S, MW121D	Field duplicate MW112A (MW900)
4/17/2012	GEO-1, MW104, MW105, MW116, MW118T, MW122, MW202	Field duplicate MW116 (MW901) Sample from MW104 was used for MS/MSD
Semi-Annual Groundwater Sampling 11/12/2012	MW112A, MW118D, MW121D, MW122	NA

**General Notes:**

1. NA = not applicable.
2. QA/QC = quality assurance/quality check.
3. MS/MSD = matrix spike/matrix spike duplicate.
4. VOC = volatile organic compound.
5. All groundwater samples submitted for VOC testing. Selected samples collected in January 2007, April 2010, April 2011, April 2012, and April 2013 were also submitted for natural attenuation parameter testing.



**Table 2-2. Summary of Groundwater Sampling Activities**  
**Phase V Status Report No. 6 and Remedial Monitoring Report No. 21**  
**50 Tufts Street**  
**Somerville, Massachusetts**

Sampling Event and Date	Sampled Locations	QA/QC Samples
Annual Groundwater Sampling 4/23/2013	SH-MW-3, MW105, MW117T, MW119S, MW119T, MW120S, MW120D, MW121S, MW121D, MW122, MW202	NA
4/24/2013	GEO-1, MW104, MW112A, MW116, MW117S, MW117D, MW118S, MW118T, MW118D	Field duplicate MW116 (MW900) Field duplicate MW112A (MW901) Sample from MW104 was used for MS/MSD
5/1/2013	GEO-2	
Semi-Annual Groundwater Sampling 11/18/2013	MW112A, MW118D, MW121D, MW122	NA
Kleinfelder Groundwater Sampling 2/6/2014	KE-114-140206, KE-115-140206, KE-116-140206, KE-117-140206, MW-SR-140206, WashSW-140206	Sample from WashSW-140206 was a grab sample from the base of an open excavation.
4/8/2014	KE-202D, KE-202S	NA
4/9/2014	KE-117	NA
4/14/2014	KE-204, KE-206, KE-208	NA
4/15/2014	KE-205, KE-207, KE-209, KE-210	NA
Annual Groundwater Sampling 4/30/2014	MW104, MW121S, MW121D, MW122, SH-MW-3, GEO-1, GEO-2	Sample from MW104 was used for MS/MSD
5/1/2014	MW117S, MW117T, MW117D, MW118S, MW118D, MW118T, MW119S, MW119T, MW120S, MW120D, MW116	Field duplicate MW116 (MW900)
6/11/2014	MW112A	NA

**General Notes:**

1. NA = not applicable.
2. QA/QC = quality assurance/quality check.
3. MS/MSD = matrix spike/matrix spike duplicate.
4. VOC = volatile organic compound.
5. All groundwater samples submitted for VOC testing. Selected samples collected in January 2007, April 2010, April 2011, April 2012, April 2013, April 2014, and June 2014 were also submitted for natural attenuation parameter testing.











Table 2-3. Chemical Testing Results - Groundwater  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
50 Tufts Street  
Somerville, Massachusetts

Analyte	Method	Units	Sample Location:																														
			GEO-3		GEO-3		GEO-3		GEO-3		GEO-3		GEO-4		GEO-4		GEO-4		GEO-5		GEO-5		GEO-5		GEO-6		GEO-6		MW-1				
			5 to 20 8/16/04 Geolnsight	5 to 20 5/24/06 GEI	MW900 (FD) 5 to 20 5/24/06 GEI	GEO-3 5 to 20 10/4/06 GEI	MW900 (FD) 5 to 20 10/4/06 GEI	GEO-3 5 to 20 1/16/07 GEI	GEO3 5 to 20 4/13/07 GEI	GEO-4 4 to 19 8/16/04 Geolnsight	GEO-4 4 to 19 5/24/06 GEI	GEO-4 4 to 19 10/4/06 GEI	GEO4 4 to 19 1/16/07 GEI	GEO-5 5 to 20 8/16/04 Geolnsight	GEO-5 5 to 20 5/24/06 GEI	GEO-5 5 to 20 10/4/06 GEI	GEO5 5 to 20 1/16/07 GEI	GEO5 5 to 20 4/16/07 GEI	GEO-6 5 to 20 8/16/04 Geolnsight	GEO-6 5 to 20 5/24/06 GEI	GEO-6 5 to 20 10/4/06 GEI	GEO-6 5 to 20 1/16/07 GEI	MW900 (FD) 5 to 20 1/16/07 GEI	GEO6 5 to 20 4/16/07 GEI	MW901 (FD) 5 to 20 4/16/07 GEI	MW-1 Unknown 7/1/02 SHA	MW-1 Unknown 8/9/04 Geolnsight	MW-1 Unknown 5/23/06 GEI	MW-1 Unknown 1/17/07 GEI	MW1 Unknown 4/17/07 GEI			
<b>Volatile Organic Compounds (VOCs)</b>																																	
Acetone	8260	µg/l	< 1000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 2000	< 5.0	< 5.0	< 250	< 5.0	< 200	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		
Benzene			< 5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 100	< 5.0	< 5.0	< 25	< 0.50	< 10	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Bromodichloromethane			< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
2-Butanone (MEK)			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1000	< 5.0	< 5.0	< 250	< 5.0	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		
Carbon disulfide			< 250	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 250	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		
Carbon tetrachloride			< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Chlorobenzene			< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Chloroethane			< 100	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 200	< 2.0	< 2.0	< 100	< 2.0	< 20	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		
Chloroform			< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	2.5	< 20	< 1.0	< 10	< 1.0	0.62 J	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Chloromethane			< 100	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 200	< 2.0	< 2.0	< 100	< 2.0	< 20	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		
1,4-Dichlorobenzene			< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethane			< 5.0	< 1.0	< 1.0	11.6	11.6	2.6	< 1.0	< 1.0	< 1.0	< 100	2.7	7.1	< 20	< 1.0	< 100	3.0	9.7	< 50	< 1.0	< 1.0	2.0	4.4	1.7	1.6	0.92 J	1.1	< 7500	< 2000	59.8	59.9	
1,2-Dichloroethane			< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethylene			108	< 1.0	< 1.0	59.3	59.1	11.5	1.4	< 1.0	< 1.0	< 100	6.1	17.8	< 20	< 1.0	< 100	8.9	32.7	< 50	< 1.0	< 1.0	4.6	11.0	4.4	3.2	2.8	3.8	< 5.0	< 2000	115000	1260	2290
cis-1,2-Dichloroethylene			< 5.0	< 1.0	< 1.0	2.8	2.6	1.2	< 1.0	< 1.0	< 1.0	< 100	6.3	16.7	< 20	5.5 J	< 1.0	12.5	35.2	< 50	< 1.0	14.8	9.1	15.4	7.7	6.9	5.3	6.3	< 5.0	< 2000	24.3	7.7	< 5.0
trans-1,2-Dichloroethylene			< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 1.0	< 100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
1,2-Dichloropropane			< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 100	< 2.0	< 2.0	< 40	< 2.0	< 100	< 2.0	< 2.0	< 100	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
1,4-Dioxane			NT	< 25	< 25	< 25 R	< 25 R	< 25	< 25	< 25	< 25	NT	< 25	< 25 R	< 1300	< 25	< 25	NT	< 25	< 25 R	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	
Ethylbenzene			< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 20	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
2-Hexanone			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1000	< 5.0	< 5.0	< 250	< 5.0	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
4-Isopropyltoluene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 250	< 5.0	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Methyl tert-butyl ether			< 5.0	< 1.0	< 1.0	1.2 J+	1.1 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	1.5 J+	< 20	< 1.0	< 100	1.3	3.3 J+	< 50	< 1.0	< 1.0	1.3	1.9 J+	1.2	1.2	0.80 J	0.81 J	< 10000	< 2000	< 1.0 J+	< 1.0	< 5.0
Methylene chloride			< 5.0	< 2.0	< 2.0	< 5.0	< 2.0	< 5.0	< 2.0	< 2.0	< 2.0	< 1000	< 2.0	< 2.0	< 100	< 2.0	< 100	< 2.0	< 2.0	< 100	< 2.0	< 100	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Naphthalene			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 250	< 5.0	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Tert-amyl methyl ether			NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	NT	< 2.0	< 2.0	< 100	< 2.0	< 100	< 2.0	< 2.0	< 100	< 2.0	< 100	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
1,1,1,2-Tetrachloroethane			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 100	< 5.0	0.84 J	< 100	< 5.0	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Tetrachloroethylene (PCE)			4020	162	157	2720	2340	529	93.2	12900	6690	24100	16700	8240	14400	2440	12900	254 F+	17.9	782	675	1980	632	594 F+	618	497	52000	24200	34400	74900	49600		
Tetrahydrofuran			NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NT	< 1.0	< 1.0	< 200	< 1.0	< 100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene			< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 1.0	< 50	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
1,1,1-Trichloroethane (TCA)			204	4.0	4.4	78.2 J+	77.2 J+	16.2	< 1.0	1170	113	321 J+	113	70.9	646	246	652	< 50	< 1.0	27.8	42.5	77.2 J+</											



















































































**Table 2-4. Chemical Testing Results - Kleinfelder Groundwater**  
**Phase V Status Report No. 6 and Remedial Monitoring Report No. 21**  
**50 Tufts Street / Washington Street Area**  
**Somerville, Massachusetts**

Analyte	Method	Units	Sample Location:	KE-114	KE-115	KE-116	KE-117		MW-5R	WashSW <sup>(b)</sup>
			Sample Name:	KE-114	KE-115	KE-116	KE-117 <sup>(a)</sup>	KE-117	MW-5R	WashSW <sup>(b)</sup>
			Well Screen Interval (ft bgs):	5 to 30	5 to 30	5 to 30	5 to 20	5 to 20	5 to 30	Vac-Ex
			Sample Date:	2/6/14	2/6/14	2/6/14	2/6/14	4/9/14	2/6/14	2/6/14
			Collected By:	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder
<b>Volatile Organic Compounds (VOCs)</b>	SW-846 8260C	µg/l								
Benzene			< 1.0	< 1.0	< 1.0	3.8	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			< 1.0	< 1.0	< 1.0	12	< 1.0	< 1.0	< 1.0	4.4
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	8.0	< 1.0	< 1.0	< 1.0	1.8
cis-1,2-Dichloroethylene			< 1.0	1.0	< 1.0	410	2.8	< 1.0	< 1.0	26
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.2
Methyl tert-butyl ether			< 1.0	2.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene (PCE)			1.1	< 1.0	< 1.0	760	4.3	< 1.0	< 1.0	2000
Tetrahydrofuran			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	3.3
Toluene			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2.8
1,1,1-Trichloroethane (TCA)			< 1.0	< 1.0	< 1.0	11	< 1.0	< 1.0	< 1.0	13
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			< 1.0	< 1.0	< 1.0	150	1.2	< 1.0	< 1.0	38
1,2,4-Trimethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.1
Vinyl chloride			< 2.0	< 2.0	< 2.0	19	< 2.0	< 2.0	< 2.0	< 2.0
m,p-Xylene			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	37
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	19

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "<" = The analyte was not detected at a concentration above the specified reporting limit.

**Footnote:**

- (a) The groundwater sample from KE-117 on February 6, 2014 was collected during overpumping of the well to simulate construction dewatering conditions and was not collected via low flow sampling techniques.
- (b) WashSW-140206 was a grab sample collected from the base of an open excavation within Washington Street.



**Table 2-4. Chemical Testing Results - Kleinfelder Groundwater**  
**Phase V Status Report No. 6 and Remedial Monitoring Report No. 21**  
**50 Tufts Street / Washington Street Area**  
**Somerville, Massachusetts**

			Sample Location:	KE-202D	KE-202S	KE-204	KE-205	KE-206	KE-207	KE-208	KE209	KE-210
			Sample Name:	KE-202D	KE-202S	KE-204	KE-205	KE-206	KE-207	KE-208	KE209	KE-210
			Well Screen Interval (ft bgs):	~25 to 35	5 to 20	15 to 25	9.5 to 19.5	10 to 21	8 to 18	4 to 14	9 to 19	8.5 to 18.5
			Sample Date:	4/8/14	4/8/14	4/14/14	4/15/14	4/14/14	4/15/14	4/14/14	4/15/14	4/15/14
			Collected By:	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder	Kleinfelder
Analyte	Method	Units										
<b>Volatile Organic Compounds (VOCs)</b>	SW-846 8260C	µg/l										
Benzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			< 1.0	< 1.0	3.4	< 1.0	6.0	< 1.0	< 1.0	< 1.0	< 1.0	1000
1,1-Dichloroethylene			< 1.0	< 1.0	2.6	< 1.0	4.6	< 1.0	< 1.0	< 1.0	< 1.0	790
cis-1,2-Dichloroethylene			12	< 0.40	83	< 1.0	89	< 1.0	1.2	< 1.0	< 1.0	8.4
Ethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl tert-butyl ether			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	71
Tetrachloroethylene (PCE)			33	< 1.0	14000	1.0	12000	2.5	73	< 1.0	< 1.0	14000
Tetrahydrofuran			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Toluene			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1-Trichloroethane (TCA)			< 1.0	< 1.0	16	< 1.0	35.0	< 1.0	< 1.0	< 1.0	< 1.0	860
1,1,2-Trichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.8
Trichloroethylene (TCE)			5.0	< 1.0	81.0	< 1.0	86.0	< 1.0	2.0	< 1.0	< 1.0	24000
1,2,4-Trimethylbenzene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
m,p-Xylene			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
o-Xylene			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "<" = The analyte was not detected at a concentration above the specified reporting limit.

**Footnote:**

- (a) The groundwater sample from KE-117 on February 6, 2014 was collected during overpumping of the well to simulate construction dewatering conditions and was not collected via low flow sampling techniques.
- (b) WashSW-140206 was a grab sample collected from the base of an open excavation within Washington Street.







**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Analyte	Method	Cafetorium		Room 101				Room 108				Room 121		Room 122			
		150 GLEN-CAF		150 GLEN-ROOM 101A		150 GLEN-ROOM 101B		150 GLEN-ROOM 108A		150 GLEN-ROOM 108B		150 GLEN-ROOM 121		150 GLEN-ROOM 122			
		1/6/07		12/27/06		12/28/06		12/27/06		12/28/06		1/6/07		1/6/07		2/7/07	
Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		0.49 J J+	0.078 J J+	< 1.3	< 0.20	< 1.3	< 0.20	0.94 J	0.15 J	< 1.3	< 0.20	0.52 J J+	0.082 J J+	0.51 J	0.081 J J+	0.69 J	0.11 J
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		0.88 J J+	0.13 J J+	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
  2. µg/m<sup>3</sup> = micrograms per cubic meter.
  3. ppbv = parts per billion by volume.
  4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  5. FD = Field Duplicate.
  6. NT = Not Tested.
  7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - J+ The reported result is estimated.



**Table 3-1. Summary of SSDS Monitoring Events - Capuano Center  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
50 Tufts Street  
Somerville, Massachusetts**

Monitoring Date	Monitoring Event per RMR Report Period	Type of Monitoring Event	SSDS Field Parameters Measured	Analytical Samples Collected (Yes/No)?
12/31/2013	1	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at each manifold pipe, the combined influent, and effluent pipes.	No
1/24/2014	2	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at each manifold pipe, the combined influent, and effluent pipes. -Pressure readings and VOC concentrations at all the exterior extraction pipes. -Pressure readings and VOC concentrations at all the interior monitoring points. -System flow rate.	No
3/10/2014	3	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at each manifold pipe, the combined influent, and effluent pipes. -System flow rate.	No
4/7/2014	4	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at each manifold pipe, the combined influent, and effluent pipes. -System flow rate.	No
5/21/2014	5	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at each manifold pipe, the combined influent, and effluent pipes. -Pressure readings and VOC concentrations at all the exterior extraction pipes. -Pressure readings and VOC concentrations at all the interior monitoring points. -System flow rate.	No

**General Notes:**

1. SSDS = Sub-Slab Depressurization System.
2. RMR = Remedial Monitoring Report.
3. VOC = Volatile Organic Compound.
4. VOC measurements collected with a ppm-RAE calibrated to 100 parts per million (ppm) isobutylene.
5. Pressure readings collected using a Dwyer 475-000-FM manometer.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Analyte	Method	Room 125				Room 126											
		150 GLEN-ROOM 125A		150 GLEN-ROOM 125B		150 GLEN-ROOM 126		150 GLEN-ROOM 100 (FD-Room 126)		150 GLEN-RM 126		150 GLEN-ROOM 126		150 GLEN-ROOM 126		150 GLEN-RM 126	
		12/27/06		12/28/06		1/13/07		1/13/07		2/7/07		3/8/07		4/20/07		5/17/07	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>		TO-15															
Carbon tetrachloride		1.0 J	0.16 J	< 1.3	< 0.20	0.69 J	0.11 J	0.63 J	0.10 J	0.94 J	0.15 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	0.88 J	0.13 J	0.75 J	0.11 J	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
  2. µg/m<sup>3</sup> = micrograms per cubic meter.
  3. ppbv = parts per billion by volume.
  4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  5. FD = Field Duplicate.
  6. NT = Not Tested.
  7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location:		Room 126 (continued)															
Sample ID:		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126	
Sample Date:		7/30/07		9/10/07		10/8/07		10/14/07		11/15/07		12/13/07		1/21/08		2/19/08	
Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		0.60 J	0.095 J	0.69 J	0.11 J	0.82 J	0.13 J	< 1.3	< 0.20	0.69 J	0.11 J	0.59 J	0.093 J	< 1.3	< 0.20	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	1.0 J	0.15 J	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
  2. µg/m<sup>3</sup> = micrograms per cubic meter.
  3. ppbv = parts per billion by volume.
  4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  5. FD = Field Duplicate.
  6. NT = Not Tested.
  7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - J+ The reported result is estimated.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location:		Room 126 (continued)															
		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126	
Sample ID:		2/22/08		3/17/2008		4/21/08		8/18/08		11/24/08		3/2/09		8/27/09		11/11/09	
Sample Date:		Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	0.69 J	0.11 J	0.60 J	0.096 J	0.60 J	0.096 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	1.2 J	0.18 J
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location:		Room 126 (continued)						Room 134				Room 136		Room 137			
Sample ID:		150GLEN-RM126		150GLEN-RM126		150GLEN-RM126		150 GLEN-ROOM 134		150 GLEN-RM 134		150 GLEN-ROOM 136		150 GLEN-ROOM 137A		150 GLEN-ROOM 137B	
Sample Date:		2/19/10		11/11/10		3/17/11		1/13/07		2/7/07		1/13/07		1/6/07		1/6/07	
Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		< 1.3	< 0.20	NT	NT	NT	NT	0.75 J	0.12 J	0.94 J	0.15 J	0.69 J	0.11 J	0.52 J J+	0.082 J J+	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.53	< 0.13	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	NT	NT	NT	NT	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.52	< 0.13	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.37	< 0.094	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 0.82	< 0.12	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 0.95	< 0.14	3.2	0.47	< 1.4	< 0.20	2.1	0.31	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 0.76	< 0.14	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 0.70	< 0.13	0.54 J	0.10 J	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
  2. µg/m<sup>3</sup> = micrograms per cubic meter.
  3. ppbv = parts per billion by volume.
  4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  5. FD = Field Duplicate.
  6. NT = Not Tested.
  7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - J+ The reported result is estimated.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
Capuano Center  
150 Glen Street  
Somerville, Massachusetts

Sample Location: Sample ID:		Room 138															
		RM138		150 GLEN-ROOM 138		150 GLEN-ROOM 138		150 GLEN-ROOM 138		150 GLEN-ROOM 138 (Alpha duplicate)		150 GLEN-RM 138		150 GLEN-RM 139 (FD-Room 138)		150GLEN-ROOM 138	
		1/2/07		1/6/07		1/13/07		1/26/07		1/26/07		2/7/07		2/7/07		3/8/07	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		< 1.3	< 0.20	0.49 J J+	0.078 J J+	0.82 J	0.13 J	0.82 J	0.13 J	< 0.126	< 0.020	0.75 J	0.12 J	0.52 J	0.082 J	< 1.3	< 0.20
1,1-Dichloroethane		0.45 J	0.11 J	0.77 J J+	0.19 J J+	0.57 J	0.14 J	0.65 J	0.16 J	< 0.081	< 0.020	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.079	< 0.020	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	2.1 J+	0.54 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.079	< 0.020	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	0.83 J+	0.21 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.0819	< 0.020	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		14	2.0	60 J+	8.8 J+	20	3.0	20	3.0	32.6	4.8	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.109	< 0.020	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		2.3	0.42	7 J+	1.3 J+	3.1	0.57	3.3	0.61	4.26	0.794	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location: Sample ID: Sample Date: Units:		Room 138 (continued)															
		150GLEN-ROOM 139 (FD-Room 138)		150 GLEN-ROOM 138		150GLEN-ROOM 139 (FD-Room 138)		150 GLEN-RM 138		150GLEN-ROOM 139 (FD-Room 138)		150GLEN-RM138		150GLEN-ROOM 139 (FD-Room 138)		150GLEN-RM138	
		3/8/07		4/20/07		4/20/07		5/17/07		5/17/07		7/30/07		7/30/07		9/10/07	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.61 J	0.097 J	0.69 J	0.11 J	0.69 J	0.11 J
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81 J+	< 0.20 J+
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81 J+	< 0.20 J+
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79 J+	< 0.20 J+
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79 J+	< 0.20 J+
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4 J+	< 0.20 J+	< 1.4 J+	< 0.20 J+	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	1.2 J	0.17 J	1.1 J	0.16 J	< 1.4 J+	< 0.20 J+
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1 J+	< 0.20 J+
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1 J+	< 0.20 J+

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
  2. µg/m<sup>3</sup> = micrograms per cubic meter.
  3. ppbv = parts per billion by volume.
  4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  5. FD = Field Duplicate.
  6. NT = Not Tested.
  7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - J+ The reported result is estimated.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location: Sample ID:  Sample Date: Units:		Room 138 (continued)															
		150GLEN-ROOM 139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM239 (FD-Room 138)		150GLEN-RM238 (FD-Room 138)		150GLEN-RM138		150GLEN-ROOM 139 (FD-Room 138)		150GLEN-RM238 (FD-Room 138)	
		9/10/07		10/8/07		10/8/07		10/8/07		10/8/07		10/14/07		10/14/07		10/14/07	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		0.69 J	0.11 J	0.69 J	0.11 J	0.88 J	0.14 J	0.82 J	0.13 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.59 J	0.094 J
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		6.5	0.96	< 1.4	< 0.20	1.5	0.22	1.2 J	0.18 J	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
  2. µg/m<sup>3</sup> = micrograms per cubic meter.
  3. ppbv = parts per billion by volume.
  4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  5. FD = Field Duplicate.
  6. NT = Not Tested.
  7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
Capuano Center  
150 Glen Street  
Somerville, Massachusetts

Sample Location: Sample ID: Sample Date: Units:		Room 138 (continued)															
		150GLEN-RM239 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138	
		10/14/07		11/15/07		11/15/07		12/13/07		12/13/07		1/21/08		1/21/08		2/19/08	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		0.62 J	0.099 J	0.69 J	0.11 J	0.69 J	0.11 J	0.57 J	0.091 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,1,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location: Sample ID: Sample Date: Units:		Room 138 (continued)															
		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138	
		2/19/08		2/22/08		2/22/08		3/17/08		3/17/08		4/21/08		4/21/08		8/18/08	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
Volatile Organic Compounds (VOCs)	TO-15																
Carbon tetrachloride		< 1.3	< 0.20	0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.75 J	0.12 J	0.69 J	0.11 J	0.69 J	0.11 J
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		1.8	0.27	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location:		Room 138 (continued)															
Sample ID:		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138	
Sample Date:		8/18/08		11/24/08		11/24/08		3/2/09		3/2/09		8/27/09		8/27/09		11/11/09	
Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		0.63 J	0.10 J	0.62 J	0.098 J	0.63 J	0.10 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
Capuano Center  
150 Glen Street  
Somerville, Massachusetts

Sample Location: Sample ID: Sample Date: Units:		Room 138 (continued)													
		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)		150GLEN-RM138		150GLEN-RM139 (FD-Room 138)	
		11/11/09		2/19/10		2/19/10		11/11/10		11/11/10		3/17/11		3/17/11	
		$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv
Analyte	Method														
<b>Volatile Organic Compounds (VOCs)</b>	TO-15														
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.53	< 0.13	< 0.53	< 0.13
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.52	< 0.13	< 0.52	< 0.13
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.37	< 0.094	< 0.37	< 0.094
1,1,1,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.82	< 0.12	< 0.82	< 0.12
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.95	< 0.14	< 0.95	< 0.14
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.76	< 0.14	< 0.76	< 0.14
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.70	< 0.13	< 0.70	< 0.13

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.  
J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location:		Room 141															
		150 GLEN-ROOM 141		150GLEN-ROOM 141		150 GLEN-ROOM 141		150 GLEN-RM 141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141	
Sample ID:		1/6/07		3/8/07		4/20/07		5/17/07		7/30/07		9/10/07		10/8/07		10/14/07	
Sample Date:		Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>		TO-15															
Carbon tetrachloride		0.45 J J+	0.071 J J+	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3 J+	< 0.20 J+	0.75 J	0.12 J	< 1.3	< 0.20	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4 J+	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4 J+	< 0.20 J+	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location: Sample ID:  Sample Date: Units:		Room 141 (continued)															
		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141	
		11/15/07		12/13/07		1/21/08		2/19/08		2/22/08		3/17/08		4/21/08		8/18/08	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.69 J	0.11 J	< 1.3	< 0.20	0.69 J	0.11 J	0.60 J	0.096 J
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	0.62 J	0.092 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location: Sample ID:		Room 141 (continued)										Room 142					
		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		150GLEN-RM141		RM142		150 GLEN-ROOM 142	
Sample Date:		11/24/08		3/2/09		8/27/09		2/19/10		11/11/10		3/17/11		1/2/07		1/6/07	
Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		0.63 J	0.10 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	NT	NT	NT	NT	< 1.3	< 0.20	0.52 J J+	0.083 J J+
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.53	< 0.13	1.4	0.35	1.2 J+	0.29 J+
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	NT	NT	NT	NT	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.52	< 0.13	0.87	0.22	2.5 J+	0.63 J+
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.37	< 0.094	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.82	< 0.12	< 1.4	< 0.20	< 1.4 J+	< 0.20 J+
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.95	< 0.14	28	4.1	45 J+	6.6 J+
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.76	< 0.14	< 1.1	< 0.20	0.33 J J+	0.061 J J+
Trichloroethylene (TCE)		0.62 J	0.092 J	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.70	< 0.13	3.7	0.69	5.4 J+	1 J+

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
  2. µg/m<sup>3</sup> = micrograms per cubic meter.
  3. ppbv = parts per billion by volume.
  4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  5. FD = Field Duplicate.
  6. NT = Not Tested.
  7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - J+ The reported result is estimated.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location: Sample ID:		Room 142 (continued)															
		150 GLEN-RM 142		150GLEN-ROOM 142		150 GLEN-ROOM 142		150 GLEN-RM 142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142	
Sample Date: Units:		2/7/07		3/8/07		4/20/07		5/17/07		7/30/07		9/10/07		10/8/07		10/14/07	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		0.82 J	0.13 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.63 J	0.10 J	0.75 J	0.12 J	< 1.3	< 0.20	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	1.0	0.25	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location: Sample ID:		Room 142 (continued)															
		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142	
Sample Date: Units:		11/15/07		12/13/07		1/21/08		2/19/08		2/22/08		3/17/08		4/21/08		8/18/08	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.75 J	0.12 J	< 1.3	< 0.20	0.69 J	0.11 J	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location:		Room 142 (continued)													
		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142	
Sample ID:		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142		150GLEN-RM142	
Sample Date:		11/24/08		3/2/09		8/27/09		11/11/09		2/19/10		11/11/10		3/17/11	
Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method														
<b>Volatile Organic Compounds (VOCs)</b>	TO-15														
Carbon tetrachloride		0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	NT	NT	NT	NT
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.53	< 0.13
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	NT	NT	NT	NT
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.52	< 0.13
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.37	< 0.094
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.82	< 0.12
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.95	< 0.14
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.76	< 0.14
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.70	< 0.13

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location:		Room 144				Room 145		Room 146									
		Sample ID: 150 GLEN-ROOM 144		150 GLEN-ROOM 144 (Alpha duplicate)		150 GLEN-ROOM 145		150 GLEN-ROOM 146A		150 GLEN-ROOM 146B		150 GLEN-ROOM 146B (FD-Room 146)		RM146		150 GLEN-ROOM 146	
Sample Date:		1/13/07		1/13/07		1/6/07		12/27/06		12/28/06		12/28/06		1/2/07		1/6/07	
Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>		TO-15															
Carbon tetrachloride		0.88 J	0.14 J	< 3.14	< 0.50	0.45 J J+	0.071 J J+	1.1 J	0.18 J	< 1.3	< 0.20	0.49 J	0.078 J	0.63 J	0.10 J	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 2.02	< 0.50	< 0.81	< 0.20	10	2.5	3.6	0.88	3.3	0.82	0.53 J	0.13 J	0.57 J J+	0.14 J J+
1,2-Dichloroethane		< 0.81	< 0.20	< 1.98	< 0.50	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 1.98	< 0.50	< 0.79	< 0.20	7.9	2.0	4.0	1.0	3.9	0.99	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 2.02	< 0.50	< 0.79	< 0.20	3.3	0.83	1.3	0.33	1.2	0.31	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		4.1	0.61	4.36	0.643	< 1.4	< 0.20	186	27.5	83.4	12.3	85.4	12.6	11	1.6	26 J+	3.8 J+
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 2.72	< 0.50	< 1.1	< 0.20	2.1	0.38	0.82 J	0.15 J	0.71 J	0.13 J	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		1.3	0.24	< 2.68	< 0.50	< 1.1	< 0.20	37	6.8	10	1.9	11	2.1	1.7	0.32	3.0 J+	0.56 J+

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location:		Room 146 (continued)															
		150 GLEN-RM 146		150GLEN-ROOM 146		150 GLEN-ROOM 146		150 GLEN-RM 146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146	
Sample ID:		2/7/07		3/8/07		4/20/07		5/17/07		7/30/07		9/10/07		10/8/07		10/14/07	
Sample Date:																	
Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		0.75 J	0.12 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.62 J	0.099 J	0.82 J	0.13 J	< 1.3	< 0.20	0.58 J	0.092 J
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 2.0	< 0.50	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4 +	< 0.20 J+	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	1.0 J	0.15 J	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location: Sample ID:		Room 146 (continued)															
		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146	
		11/15/07		12/13/07		1/21/08		2/19/08		2/22/08		3/17/08		4/21/08		8/18/08	
		Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.62 J	0.098 J	< 1.3	< 0.20	0.75 J	0.12 J	0.60 J	0.096 J
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	0.49 J	0.12 J
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
Capuano Center  
150 Glen Street  
Somerville, Massachusetts

Sample Location: Sample ID:		Room 146 (continued)													
		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146		150GLEN-RM146	
Sample Date: Units:		11/24/08		3/2/09		8/27/09		11/11/09		2/19/10		11/11/10		3/17/11	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method														
<b>Volatile Organic Compounds (VOCs)</b>	TO-15														
Carbon tetrachloride		0.63 J	0.10 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	NT	NT	NT	NT
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.53	< 0.13
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	NT	NT	NT	NT
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.52	< 0.13
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.37	< 0.094
1,1,1,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.82	< 0.12
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 0.95	< 0.14
1,1,1-Trichloroethane (TCA)		< 1.1	< 0.20	< 1.1	< 0.20	0.93 J	0.17 J	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.76	< 0.14
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.70	< 0.13

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.  
J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Analyte	Method	Sample Location: Outside of School by Room 126 Window						Outside of School by Day Care Window						Downwind on Roof			
		Sample ID: 150 GLEN-0-1A		150 GLEN-0-1B		150 GLEN-0-1A		150 GLEN-0-2A		150 GLEN-0-2B		150 GLEN-0-2A		150 GLEN-ROOF B		150 GLEN-ROOF B	
		Sample Date: 12/27/06		12/28/06		1/6/07		12/27/06		12/28/06		1/6/07		2/8/07		2/8/07	
		Units: µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv	
<b>Volatile Organic Compounds (VOCs)</b>		TO-15															
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	0.52 J J+	0.083 J J+	1.1 J	0.17 J	< 1.3	< 0.20	0.52 J J+	0.082 J J+	< 1.3	< 1.3	< 0.20	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.81	< 0.20	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.81	< 0.20	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.79	< 0.20	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.79	< 0.20	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 1.4	< 0.20	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 1.4	< 0.20	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 1.2	< 0.21	< 0.21
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 1.1	< 0.20	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.





**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
Capuano Center  
150 Glen Street -  
Somerville, Massachusetts

Sample Location: Sample ID:		Downwind on Roof (continued)															
		150GLEN-ROOF		150 GLEN-ROOF		150 GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF	
Sample Date: Units:		3/8/07		4/20/07		5/17/07		8/9/07		9/10/07		10/14/07		11/14/07		12/17/07	
		$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	1.2 J	0.18 J	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.



**Table 3-2. Chemical Testing Results - Indoor and Outdoor Air**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 Capuano Center  
 150 Glen Street  
 Somerville, Massachusetts

Sample Location: Sample ID:  Sample Date: Units:		Downwind on Roof (continued)															
		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF		150GLEN-ROOF	
		1/21/08		2/19/08		3/17/08		4/21/08		8/18/08		11/24/08		8/27/09		11/11/09	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
<b>Volatile Organic Compounds (VOCs)</b>	TO-15																
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.69 J	0.11 J	0.63 J	0.10 J	0.63 J	0.10 J	< 1.3	< 0.20	< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
cis-1,2-Dichloroethylene		< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,1,1,2-Tetrachloroethane		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane (TCA)		< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.2	< 0.21	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. FD = Field Duplicate.
6. NT = Not Tested.
7. The samples collected in August 2009, November 2009, February 2010, November 2010, and March 2011 were collected over a 24-hour period.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.





**Table 6-2. Summary of SSDS Influent and Effluent Air Sampling Results**  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected By: Units:			Carbon Influent								Carbon Effluent					
			04516-50T-INF		045162-50 TUFT-INF		045162-50 TUFT-INF		045163-50TUFTS-INF		04516-50T-EFF		045162-50 TUFT-EFF		045163-50 TUFT-EFF	
			5/1/07		6/12/07		3/13/08		2/10/14		5/1/07		6/12/07		2/10/14	
			GEI		GEI		GEI		GEI		GEI		GEI		GEI	
Analyte	MassDEP Background		$\mu\text{g}/\text{m}^3$	ppbV	$\mu\text{g}/\text{m}^3$	ppbV	$\mu\text{g}/\text{m}^3$	ppbV	$\mu\text{g}/\text{m}^3$	ppbV	$\mu\text{g}/\text{m}^3$	ppbV	$\mu\text{g}/\text{m}^3$	ppbV	$\mu\text{g}/\text{m}^3$	ppbV
	<b>Volatile Organic Compounds (VOCs)</b>															
Acetone			7440	3130	< 1400	< 600	NM	NM	12	5.2	848 E	357 E	< 24	< 10	6.9	2.9
Benzene			< 160	< 50	< 1900	< 600	NM	NM	2.6	0.81	3.0	0.93	< 32	< 10	< 1.6	< 0.5
Chloroethane	NS	NS	< 53	< 20	< 630	< 240	< 530	< 200	< 0.53	< 0.2	< 0.53	< 0.2	< 11	< 4.0	< 0.53	< 0.2
Chloroform			< 240	< 50	< 2900	< 600	NM	NM	1.0 J	0.21 J	< 0.53	< 0.20	93.8	19.2	< 2.4	< 0.5
Chloromethane			< 130	< 20	< 630	< 240	NM	NM	0.68 J	0.33 J	0.89 J	0.43 J	< 21	< 10	0.74 J	0.36 J
Carbon tetrachloride	1	0.16	< 130	< 20	< 1500	< 240	< 1300	< 200	< 1.3	< 0.2	< 1.3	< 0.20	< 25	< 4.0	< 1.3	< 0.2
Dichlorodifluoromethane			< 250	< 50	< 3000	< 600	NM	NM	2.3 J	0.46 J	< 2.5	< 0.5	< 49	< 10	< 2.5	< 0.5
1,1-Dichloroethane	NS	NS	< 81	< 20	< 970	< 240	< 810	< 200	< 0.81	< 0.2	< 0.81	< 0.2	14 J	3.4 J	< 0.81	< 0.2
cis-1,2-Dichloroethylene			< 79	< 20	< 950	< 240	< 790	< 200	6.3	1.6	< 0.79	< 0.2	31	7.7	< 0.79	< 0.2
1,1-Dichloroethylene			341	86.1	< 950	< 240	< 790	< 200	2.3	0.58	< 0.79	< 0.20	519	131	< 0.79	< 0.2
1,4-Dioxane			936	260	< 2200	< 600	NM	NM	< 1.8	< 0.5	< 1.8	< 0.50	< 36	< 10	< 1.8	< 0.5
Ethylbenzene			342	78.7	< 2600	< 600	NM	NM	< 2.2	< 0.5	< 2.2	< 0.5	< 43	< 10	< 2.2	< 0.5
Ethanol			< 94	< 50	< 1100	< 600	NM	NM	21.3	11.3	< 0.94	< 0.5	< 19	< 10	20.1	10.7
Freon 113			209 J	27.3 J	< 4600	< 600	NM	NM	< 3.8	< 0.5	< 3.8	< 0.5	< 77	< 10	< 3.8	< 0.5
Isopropyl Alcohol			< 120	< 50	< 1500	< 600	NM	NM	1.1 J	0.43 J	< 1.2	< 0.5	< 25	< 10	1.2 J	0.47 J
Methylene chloride			1650	476	< 2100	< 600	NM	NM	1.4 J	0.41 J	< 1.7	< 0.5	< 35	< 10	1.6 J	0.46 J
Methyl ethyl ketone			< 150	< 50	< 1800	< 600	NM	NM	1.7	0.56	7.7	2.6	< 29	< 10	1.7	0.56
Methyl Isobutyl Ketone			< 200	< 50	< 2500	< 600	NM	NM	< 2.0	< 0.5	3.4	0.82	< 41	< 10	< 2.0	< 0.5
Propylene			< 86	< 50	< 1000	< 600	NM	NM	< 0.86	< 0.5	198 E	115 E	< 17	< 10	< 0.86	< 0.5
Tetrachloroethylene (PCE)	11	1.6	392000	57800	347000 G	51100 G	157000	23100	14200	2100	< 1.4	< 0.20	117	17.3	1.1 J	0.2
Tetrahydrofuran			663	225	< 1800	< 600	NM	NM	1.2 J	0.42 J	5.9	2.0	< 29	< 10	< 1.5	< 0.5
Toluene			< 190	< 50	< 2300	< 600	NM	NM	2.9	0.8	< 1.9	< 0.5	< 38	< 10	1.2 J	0.31 J
1,1,1-Trichloroethane (TCA)	30	5.41	13700	2510	12800	2340	2460	450	94.4	17.3	< 1.1	< 0.20	8780	1610	< 1.1	< 0.2
Trichloroethylene (TCE)	5	0.92	15700	2920	5800	1080	2450	455	137	25.4	< 1.1	< 0.20	28	5.2	< 1.1	< 0.2
Trichlorofluoromethane			< 280	< 50	< 3400	< 600	NM	NM	1.1 J	0.19 J	< 2.8	< 0.5	< 56	< 10	< 2.8	< 0.5
Vinyl Chloride	NS	NS	< 51	< 20	< 610	< 240	< 510	< 200	< 0.51	< 0.2	< 0.51	< 0.20	< 10	< 4.0	< 0.51	< 0.2
m,p-Xylene			1540	354	< 2600	< 600	NM	NM	7.8	1.8	< 2.2	< 0.5	< 43	< 10	< 2.2	< 0.5
o-Xylene			534	123	< 2600	< 600	NM	NM	< 2.2	< 0.5	< 2.2	< 0.5	< 43	< 10	< 2.2	< 0.5

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
  3. ppbv = parts per billion by volume.
  4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  5. PID response factors are obtained from Technical Note TN-106 from www.raesystems.com.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - G The reported result is estimated due to duplicate precision outside control limits.
  - E Value exceeds calibration range.



**Table 4-1. Exposure Pathway Mitigation Measure (EPMM) Status**  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
50 Tufts Street  
Somerville, Massachusetts

Property Address	EPMM Design Option	Date Completed or Last Modified	Date of Last Indoor Air Monitoring	Ventilation Fan(s) (Model No.) <sup>(a)</sup>	Number of Sub-Slab Vapor Extraction Points (SSDs)	Construction Details										
						Sub-slab Vapor Barrier - HDPE Liner	Sub-Slab Ventilation System - Geocomposite	Sub-Slab Vapor Trench	Foundation Wall Ventilation System - Geocomposite	New Basement Slab Installed	Crawlspace Vapor Barrier	Floor Epoxy Vapor Barrier -	Foundation Walls Epoxy Vapor Barrier -			
91-93 Franklin Street	3	March, 2009	3/1/2012	-	-	Yes	Yes	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes
95 Franklin Street	2/1 <sup>(b)</sup>	May, 2011	5/16/2013	GP-501	-	-	-	-	-	-	-	-	-	-	-	-
95R Franklin Street	2	December, 2007	3/8/2010	-	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
150 Glen Street	1	February, 2007	3/17/2011	Regenerative Blower	18	-	-	-	-	-	-	-	-	-	-	-
166-168 Glen Street	3	November, 2010	3/1/2012	-	-	Yes	-	-	-	-	-	-	-	-	-	-
9 Knowlton Street	1	January, 2010	5/21/2007	GP-501	5	-	-	-	-	-	-	-	-	-	-	-
13 Knowlton Street	1	January, 2010	2/1/2011	GP-501	4	-	-	-	-	-	-	-	-	-	-	-
17 Knowlton Street	3	March, 2009	3/7/2012	-	-	Yes	Yes	-	-	-	-	-	-	-	-	-
31-33 Knowlton Street	1	February, 2008	3/19/2010	HS-5000	7	-	-	-	-	-	-	-	-	-	-	-
32 Knowlton Street	3	May, 2009	3/8/2011	-	-	-	-	-	-	-	-	-	-	-	-	-
34 Knowlton Street	3	June, 2014	NS	--	--	Yes	--	--	--	Yes	--	--	--	--	--	--
35-37 Knowlton Street	3/1 <sup>(b)</sup>	April, 2010	3/11/2011	GP-501	-	Yes	-	-	-	Yes	-	-	-	-	-	-
4 Morton Street	3	November, 2008	3/20/2012	-	-	Yes	Yes	-	-	Yes	-	-	-	-	-	-
10 Morton Street	3	March, 2009	3/5/2011	-	-	Yes	Yes	-	-	Yes	-	-	-	-	-	-
11 Morton Street	2	November, 2008	2/23/2010	-	-	-	-	Yes	Yes	-	-	-	-	-	-	-
12 Morton Street	3	March, 2008	11/19/2010	-	-	Yes	Yes	-	-	-	-	-	-	-	-	-
13 Morton Street	1	October, 2008	1/28/2010	GP-501	5	-	-	-	-	-	-	-	-	-	-	-
18 Morton Street	1	July, 2007	2/24/2011	GP-501	5	-	-	-	-	-	-	-	-	-	-	-
19-19A Morton Street	3	August, 2009	3/1/2012	-	-	-	-	-	-	-	-	-	-	-	-	-
23 Tufts Street	1	May, 2007	2/25/2010	GP-501	1	-	-	-	-	-	-	-	-	-	-	-
27 Tufts Street	3/1 <sup>(b)</sup>	May, 2011	5/23/2013	GP-501	-	Yes	Yes	-	-	-	-	-	-	-	-	-
50 Tufts Street	1	August, 2007	10/21/2011	Regenerative Blower	22	-	-	-	-	-	-	-	-	-	-	-
60 Tufts Street	1	April, 2009	2/5/2011	Regenerative Blower	14	-	-	-	-	-	-	-	-	-	-	-
103 Washington Street	1	July, 2007	NS	GP-501 and GP-201	3	-	-	-	-	-	-	-	-	-	-	-

**General Notes:**

1. NS = Not sampled.
2. NA = Not Applicable.

**Footnotes:**

- (a) Ventilation fans manufactured by Radon Away.
- (b) An Option 2 or 3 EPMM was initially installed at these properties; however, a fan was added to the EPMM to improve performance. Therefore, these EPMMs consist of Option 1 with Option 2 or 3 EPMM elements.







**Table 4-2. Indoor Air Sampling and EPMM Monitoring December 16, 2013 through June 15, 2014**  
**Phase V Status Report No. 6 and Remedial Monitoring Report No. 21**  
**Residential and Commercial Properties**  
**Somerville, Massachusetts**

Property	Property Type	Indoor Air Sampling <sup>1</sup>	EPMM Inspection <sup>2</sup>	Indoor Air Sampling Rationale
91-93 Franklin Street	Residential	Not Sampled	05/16/14	Post-EPMM evaluation - IA sampling complete
95 Franklin Street	Residential	Not Sampled	04/29/14	Post-EPMM evaluation - IA sampling complete
95R Franklin Street	Residential	Not Sampled	03/14/14	Post-EPMM evaluation - IA sampling complete
166-168 Glen Street	Residential	Not Sampled	04/29/14	Post-EPMM evaluation - IA sampling complete
9 Knowlton Street	Residential	Not Sampled	05/02/14	Post-EPMM evaluation - IA sampling complete
13 Knowlton Street	Residential	Not Sampled	04/29/14	Post-EPMM evaluation - IA sampling complete
17 Knowlton Street	Residential	Not Sampled	04/29/14	Post-EPMM evaluation - IA sampling complete
31-33 Knowlton Street	Residential	Not Sampled	03/14/14	Post-EPMM evaluation - IA sampling complete
32 Knowlton Street	Residential	Not Sampled	04/28/14	Post-EPMM evaluation - IA sampling complete
35-37 Knowlton Street	Residential	Not Sampled	05/02/14	Post-EPMM evaluation - IA sampling complete
4 Morton Street	Residential	Not Sampled	NA	Post-EPMM evaluation - IA sampling complete
10 Morton Street	Residential	Not Sampled	05/14/14	Post-EPMM evaluation - IA sampling complete
11 Morton Street	Residential	Not Sampled	05/14/14	Post-EPMM evaluation - IA sampling complete
12 Morton Street	Residential	Not Sampled	03/14/14	Post-EPMM evaluation - IA sampling complete
13 Morton Street	Residential	Not Sampled	NA	Post-EPMM evaluation - IA sampling complete
18 Morton Street	Residential	Not Sampled	04/29/14	Post-EPMM evaluation - IA sampling complete
19-19A Morton Street	Residential	Not Sampled	04/30/14	Post-EPMM evaluation - IA sampling complete
23 Tufts Street	Residential	Not Sampled	05/02/14	Post-EPMM evaluation - IA sampling complete
27 Tufts Street	Residential	Not Sampled	04/29/14	Post-EPMM evaluation - IA sampling complete
60 Tufts Street (Unit 1, 4 and 5)	Residential	Not Sampled	Monthly	Post-EPMM evaluation - IA sampling complete
103 Washington Street	Commercial	Not Sampled	NA	Post-EPMM evaluation - IA sampling complete

**General Notes:**

1. EPMM = Exposure Pathway Mitigation Measure.
2. See Appendix D for Air Sampling Checklists.
3. See Appendix F for EPMM inspection forms.
4. See Section 4 for a description of EPMM Inspection activities. 60 Tufts Street EPMM is inspected monthly; see Section 5.
4. NA = No inspection was performed during this reporting period.



**Table 5-1. Summary of SSDS Monitoring Events - 60 Tufts Street  
Phase V Status Report No. 4 and Remedial Monitoring Report No. 19  
50 Tufts Street  
Somerville, Massachusetts**

Monitoring Date	Monitoring Event per RMR Report Period	Type of Monitoring Event	SSDS Field Parameters Measured
12/31/2013	1	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at system influent/effluent and blower. -System flow rate.
1/24/2014	2	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at system influent/effluent and blower. -System flow rate.
3/10/2014	3	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at system influent/effluent and blower. -System flow rate.
4/7/2014	4	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at system influent/effluent and blower. -System flow rate.
5/21/2014	5	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at system influent/effluent and blower. -System flow rate.

**General Notes:**

1. SSDS = Sub-Slab Depressurization System.
2. RMR = Remedial Monitoring Report.
3. VOC = Volatile Organic Compound.
4. VOC measurements collected with a ppm-RAE calibrated to 100 ppm isobutylene gas.
5. Pressure readings collected using a Dwyer 475-000-FM manamoter.





**Table 6-1. Summary of SSDS Monitoring Events - 50 Tufts Street**  
Phase V Status Report No. 4 and Remedial Monitoring Report No. 19  
50 Tufts Street  
Somerville, Massachusetts

Monitoring Date	Monitoring Event per RMR Report Period	Type of Monitoring Event	SSDS Field Parameters Measured	Analytical Samples Collected (Yes/No)?
12/31/2013	1	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at each header pipe, the combined influent, and effluent pipes. -Pressure readings and VOC concentrations at carbon tanks. -System flow rate.	No
1/24/2014	2	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at each header pipe, the combined influent, and effluent pipes. -Pressure readings and VOC concentrations at carbon tanks -System flow rate.	No
2/4/2014	3	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at each header pipe, the combined influent, and effluent pipes. -Pressure readings and VOC concentrations at carbon tanks -System flow rate. -VOC concentrations also measured with 11.7V lamp installed in ppm-RAE.	No
2/10/2014	4	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at each header pipe, the combined influent, and effluent pipes. -Pressure readings and VOC concentrations at carbon tanks -System flow rate. -VOC concentrations also measured with 11.7V lamp installed in ppm-RAE.	Yes
4/7/2014	5	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at each header pipe, the combined influent, and effluent pipes. -Pressure readings and VOC concentrations at carbon tanks -System flow rate. -VOC concentrations also measured with 11.7V lamp installed in ppm-RAE.	No
5/21/2014	6	SSDS Monthly Monitoring	-Pressure readings and VOC concentrations at each header pipe, the combined influent, and effluent pipes. -Pressure readings and VOC concentrations at carbon tanks -System flow rate.	No

**General Notes:**

1. SSDS = Sub-Slab Depressurization System.
2. RMR = Remedial Monitoring Report.
3. VOC = Volatile Organic Compound.
4. VFD = Variable Flow Drive.
5. SVT/SVE = Soil Vapor Temporary Point/Soil Vapor Extraction.
6. VOC measurements collected with a ppm-RAE calibrated to 100 parts per million (ppm) with 10.6V lamp.
7. Pressure readings collected using a Dwyer 475-000-FM manometer.



**Table 7-1. Groundwater Elevations**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 50 Tufts Street  
 Somerville, Massachusetts

Monitoring Well ID	Well Screen Interval (ft bgs)	Gauging Date: Elevation of Measuring Point (ft NAVD)	5/15/2006		5/16/2006		5/23/2006		5/31/2006		7/24/2006		8/1/2006		8/3/2006	
			Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	9.69	16.21	9.53	16.37	10.9	15	11.39	14.51	--	--	--	--	--	--
MW-2	unknown	25.38	8.99	16.39	10.36	15.02	Dry	Dry	Dry	Dry	--	--	--	--	--	--
MW-3	unknown	25.31	8.88	16.43	9.32	15.99	11.16	14.15	12.71	12.6	--	--	--	--	--	--
MW-101	9-19	26.75	--	--	10.56	16.19	11.53	15.22	12.1	14.65	12.33	14.42	12.51	14.24	13.47	13.28
MW-102	6-16	18.89	--	--	6.62	12.27	6.86	12.03	7.44	11.45	7.93	10.96	8.16	10.73	9.11	9.78
MW-103	6-16	19.47	--	--	9.5	9.97	10.37	9.1	10.74	8.73	11.15	8.32	11.31	8.16	12.24	7.23
MW-104	5-15	17.67	--	--	--	--	7.93	9.74	8.89	3.78	9.06	8.61	9.39	8.28	10.29	7.38
MW-105	19-29	38.84	--	--	19.49	19.35	20.21	18.63	20.7	18.14	21.18	17.66	21.43	17.41	22.41	16.43
MW-106	9-19	26.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-107	2-12	14.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-108	2-12	12.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-109	3-13	24.12	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-110	3-13	15.58	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-111	4-14	18.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-112	3-10	18.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-112a	4-19	17.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-113	10-20	26.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-114	7-17	29.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-115	10-25	27.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-116	5-15	13.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117S	5-20	21.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117T	35-45	21.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117D	60-70	21.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118S	3-14	15.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118T	39.5-49.5	15.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118D	70-80	15.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-119S	5-20	11.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-119T	42-47	11.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-120S	5-20	12.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-120D	28-38	12.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-121S	5-20	12.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-121D	32-47	12.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-122	4-16	16.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GEO-1	5-20	25.88	9.69	16.19	9.9	15.98	10.92	14.96	11.36	14.52	--	--	--	--	--	--
GEO-2	5-20	26.54	9.76	16.78	--	--	11.38	15.16	11.91	14.63	--	--	--	--	--	--
GEO-3	5-20	25.64	10.43	15.21	9.59	16.05	9.87	15.77	10.67	14.97	11.67	13.97	11.85	13.79	12.84	12.8
GEO-4	4-19	21.69	--	--	7.79	13.9	9.85	11.84	10.78	10.91	11.25	10.44	11.45	10.24	12.43	9.26
GEO-5	5-20	20.14	--	--	6.78	13.36	9.08	11.06	9.96	10.18	10.29	9.85	10.56	9.58	11.51	8.63
GEO-6	5-20	17.62	--	--	5.66	11.96	7.39	10.23	8.23	9.39	8.43	9.19	8.73	8.89	9.64	7.98
SH-1	9-14	29.55	10.15	19.4	11.4	18.15	Dry	Dry	Dry	Dry	--	--	--	--	--	--
SH-2	7-14	29.64	5.71	23.93	7.86	21.78	12.07	17.57	12.22	17.42	--	--	--	--	--	--
SH-3	8-13	29.66	7.54	22.12	8.56	21.1	12.73	16.93	12.96	16.7	--	--	--	--	--	--
SH-4	11-16	29.63	13.53	16.1	13.48	16.15	14.48	15.15	15.02	14.61	--	--	--	--	--	--
SH-5	8-13	29.63	Dry	Dry	--	--	12.99	16.64	13.03	16.6	--	--	--	--	--	--
SH-MW1	10-30	24.02	6.72	17.3	--	--	11.44	12.58	12.18	11.84	--	--	--	--	--	--
SH-MW2	10-25	24.27	9.33	14.94	--	--	12.05	12.22	12.69	11.58	--	--	--	--	--	--
SH-MW3	10-24	22.31	7.8	14.51	--	--	10.26	12.05	11.03	11.28	--	--	--	--	--	--
MW201	11-21	27.51	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW202	10.5-20.5	27.82	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW203	6-18	21.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--

- General Notes:**
1. ft = feet.
  2. bgs = below ground surface.
  3. ID = identification.
  4. GW = groundwater.
  5. NAVD = North American Vertical Datum of 1988.
  6. The top of the PVC riser was used as the measuring point for depth to groundwater.
  7. "--" = Well not yet installed, abandoned, or not measured.





**Table 7-1. Groundwater Elevations**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 50 Tufts Street  
 Somerville, Massachusetts

Monitoring Well ID	Well Screen Interval (ft bgs)	Gauging Date:		8/16/2006		9/29/2006		10/4/2006		11/14/2006		12/12/2006		1/16/2007		2/12/2007	
		Elevation of Measuring Point (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	
MW-1	unknown	25.90	11.9	14	--	--	--	11.88	14.02	--	--	--	--	11.6	14.3	--	--
MW-2	unknown	25.38	Dry	Dry	--	--	--	--	--	--	--	--	--	13.05	12.26	--	--
MW-3	unknown	25.31	13.73	11.58	--	--	--	--	--	--	--	--	--	Destroyed	Destroyed	--	--
MW-101	9-19	26.75	12.78	13.97	--	--	--	13.75	11.56	--	--	--	--	--	--	--	--
MW-102	6-16	18.89	8.51	10.38	12.85	13.9	12.76	13.99	12.25	14.5	12.57	14.18	12.4	14.35	12.81	13.94	
MW-103	6-16	19.47	11.72	7.75	8.68	10.21	8.52	10.37	7.64	11.25	8.01	10.88	7.72	11.17	8.52	10.37	
MW-104	5-15	17.67	9.87	7.8	11.98	7.49	11.92	7.55	11	8.47	11.21	8.26	10.88	8.59	11.74	7.73	
MW-105	19-29	38.84	21.91	16.93	9.95	7.72	9.92	7.75	--	--	--	--	8.73	8.94	--	--	
MW-106	9 - 19	26.33	--	--	22.27	16.57	22.18	16.66	21.16	17.68	21.76	17.08	21.46	17.38	22.03	16.81	
MW-107	2 - 12	14.63	--	--	--	--	--	--	--	--	--	--	--	--	12.27	14.06	
MW-108	2 - 12	12.74	--	--	--	--	--	--	--	--	--	--	--	--	4.54	10.09	
MW-109	3 - 13	24.12	--	--	--	--	--	--	--	--	--	--	--	--	4.93	7.81	
MW-110	3 - 13	15.58	--	--	--	--	--	--	--	--	--	--	--	--	12.07	12.05	
MW-111	4 - 14	18.95	--	--	--	--	--	--	--	--	--	--	--	--	5.99	9.59	
MW-112	3 - 10	18.16	--	--	--	--	--	--	--	--	--	--	--	--	11.38	7.57	
MW-112a	4-19	17.78	--	--	--	--	--	--	--	--	--	--	--	--	Dry	Dry	
MW-113	10-20	26.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-114	7-17	29.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-115	10-25	27.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-116	5-15	13.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-117S	5 - 20	21.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-117T	35 - 45	21.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-117D	60 - 70	21.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-118S	3 - 14	15.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-118T	39.5 - 49.5	15.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-118D	70 - 80	15.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-119S	5 - 20	11.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-119T	42 - 47	11.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-120S	5 - 20	12.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-120D	28 - 38	12.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-121S	5 - 20	12.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-121D	32 - 47	12.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-122	4 - 16	16.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
GEO-1	5 - 20	25.88	11.82	14.06	--	--	11.85	14.03	--	--	--	--	11.55	14.33	--	--	
GEO-2	5 - 20	26.54	12.51	14.03	--	--	12.51	14.03	--	--	--	--	12.2	14.34	--	--	
GEO-3	5 - 20	25.64	12.25	13.39	12.37	2.84	12.35	13.29	11.63	14.01	11.72	13.92	11.58	14.06	12.21	13.43	
GEO-4	4 - 19	21.69	11.9	9.79	12.09	9.6	12.04	9.65	10.58	11.11	11.31	10.38	10.77	10.92	11.83	9.86	
GEO-5	5 - 20	20.14	10.99	9.15	11.21	8.93	11.15	8.99	9.47	10.67	10.48	9.66	9.73	10.41	11.02	9.12	
GEO-6	5 - 20	17.62	9.25	8.37	9.41	8.21	9.26	8.36	7.65	9.97	8.82	8.8	8.11	9.51	9.3	8.32	
SH-1	9 - 14	29.55	Dry	Dry	--	--	Dry	Dry	--	--	--	--	Dry	Dry	--	--	
SH-2	7 - 14	29.64	11.98	17.66	--	--	12	17.64	--	--	--	--	Dry	Dry	--	--	
SH-3	8 - 13	29.66	Dry	Dry	--	--	Dry	Dry	--	--	--	--	Dry	Dry	--	--	
SH-4	11 - 16	29.63	15.09	14.54	--	--	15.1	14.53	--	--	--	--	Dry	Dry	--	--	
SH-5	8 - 13	29.63	Dry	Dry	--	--	Dry	Dry	--	--	--	--	Dry	Dry	--	--	
SH-MW1	10 - 30	24.02	13.09	10.93	--	--	13.17	10.85	--	--	--	--	12.21	11.81	--	--	
SH-MW2	10 - 25	24.27	13.38	10.89	--	--	13.41	10.86	--	--	--	--	12.73	11.54	--	--	
SH-MW3	10 - 24	22.31	13	9.31	--	--	12.04	10.27	--	--	--	--	11.04	11.27	--	--	
MW201	11-21	27.51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW202	10.5-20.5	27.82	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW203	6-18	21.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

- General Notes:**
1. ft = feet.
  2. bgs = below ground surface.
  3. ID = identification.
  4. GW = groundwater.
  5. NAVD = North American Vertical Datum of 1988.
  6. The top of the PVC riser was used as the measuring point for depth to groundwater.
  7. "--" = Well not yet installed, abandoned, or not measured.





**Table 7-1. Groundwater Elevations**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 50 Tufts Street  
 Somerville, Massachusetts

Monitoring Well ID	Well Screen Interval (ft bgs)	Elevation of Measuring Point (ft NAVD)	Gauging Date: 3/14/2007		4/12/2007		5/29/2007		6/26/2007		7/16/2007		8/22/2007		9/27/2007		10/23/2007	
			Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	--	--	11.39	14.51	11.41	14.49	11.8	14.1	12.04	13.86	--	--	12.26	13.64	12.07	13.83
MW-2	unknown	25.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	unknown	25.31	--	--	12.57	12.74	14.89	10.42	13.6	11.71	13.94	11.37	--	--	14.34	10.97	13.94	11.37
MW-101	9-19	26.75	12.34	14.41	12.11	14.64	12.17	14.58	12.62	14.13	12.85	13.9	13.03	13.72	13.17	13.58	12.91	13.84
MW-102	6-16	18.89	--	--	7.46	11.43	6.72	12.17	8.36	10.53	8.74	10.15	9.08	9.81	9.35	9.54	8.97	9.92
MW-103	6-16	19.47	11	8.47	10.66	8.81	10.81	8.66	11.47	8.0	11.92	7.55	12.3	7.17	12.63	6.84	--	--
MW-104	5-15	17.67	--	--	8.75	8.92	--	--	9.62	8.05	10.09	7.58	10.36	7.31	10.61	7.06	10.31	7.36
MW-105	19-29	38.84	21.56	17.28	20.88	17.96	20.86	17.98	21.55	17.29	22.13	16.71	22.79	16.05	23.18	15.66	22.96	15.88
MW-106	9 - 19	26.33	12.91	13.42	11.65	14.68	11.69	14.64	12.07	14.26	12.33	14	12.48	13.85	12.61	13.72	12.39	13.94
MW-107	2 - 12	14.63	4.5	10.13	4.49	10.14	4.46	10.17	4.48	10.15	4.52	10.11	4.75	9.88	4.51	10.12	4.47	10.16
MW-108	2 - 12	12.74	4.02	8.72	9.91	2.83	4.25	8.49	5.06	7.68	6.59	6.15	6.25	6.49	6.28	6.46	5.86	6.88
MW-109	3 - 13	24.12	11.27	12.85	10.27	13.85	10.73	13.39	11.76	12.36	12.24	11.88	Dry	Dry	Dry	Dry	Dry	Dry
MW-110	3 - 13	15.58	1.46	14.12	1.04	14.54	2.56	13.02	6.57	9.01	7.17	8.41	7.86	7.72	8.37	7.21	6.92	8.66
MW-111	4 - 14	18.95	10.62	8.33	10.65	8.3	10.68	8.27	11.11	7.84	11.54	7.41	11.96	6.99	12.34	6.61	11.99	6.96
MW-112	3 - 10	18.16	8.01	10.15	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW-112a	4-19	17.78	12.76	5.02	12.76	5.02	12.67	5.11	12.81	4.97	12.88	4.9	--	--	12.95	4.83	12.8	4.98
MW-113	10-20	26.16	11.66	14.5	11.44	14.72	11.51	14.65	11.99	14.17	12.22	13.94	12.43	13.73	12.58	13.58	12.3	13.86
MW-114	7-17	29.43	12.67	16.76	11.27	18.16	11.53	17.9	12.88	16.55	15.57	13.86	14.24	15.19	14.84	14.59	14.66	14.77
MW-115	10-25	27.15	17.19	9.96	16.21	10.94	16.63	10.52	17.42	9.73	17.97	9.18	18.38	8.77	18.81	8.34	18.37	8.78
MW-116	5-15	13.45	8.78	4.67	8.34	5.11	8.65	4.8	8.76	4.69	--	--	8.85	4.6	8.91	4.54	8.83	4.62
MW-117S	5 - 20	21.94	--	--	--	--	--	--	--	--	15.27	6.67	15.7	6.24	16.03	5.91	16.2	5.74
MW-117T	35 - 45	21.87	--	--	--	--	--	--	--	--	15.95	5.92	16.38	5.49	16.81	5.06	16.91	4.96
MW-117D	60 - 70	21.78	--	--	--	--	--	--	--	--	15.87	5.91	16.26	5.52	16.69	5.09	16.77	5.01
MW-118S	3 - 14	15.52	--	--	--	--	--	--	--	--	11.64	3.88	9.84	5.68	10.2	5.32	9.42	6.1
MW-118T	39.5 - 49.5	15.30	--	--	--	--	--	--	--	--	10.36	4.94	10.51	4.79	10.74	4.56	10.68	4.62
MW-118D	70 - 80	15.15	--	--	--	--	--	--	--	--	10.18	4.97	10.32	4.83	10.55	4.6	10.49	4.66
MW-119S	5 - 20	11.74	--	--	--	--	--	--	--	--	--	4.91	6.83	4.99	6.75	4.93	6.81	6.81
MW-119T	42 - 47	11.67	--	--	--	--	--	--	--	--	--	6.45	5.22	6.8	4.87	6.72	4.95	4.95
MW-120S	5 - 20	12.54	--	--	--	--	--	--	--	--	--	5.25	7.29	5.35	7.19	4.71	7.83	7.83
MW-120D	28 - 38	12.45	--	--	--	--	--	--	--	--	--	--	--	4.21	8.24	3.94	8.51	8.51
MW-121S	5 - 20	12.44	--	--	--	--	--	--	--	--	--	--	--	--	--	7.36	5.08	5.08
MW-121D	32 - 47	12.81	--	--	--	--	--	--	--	--	--	--	--	--	--	7.92	4.89	4.89
MW-122	4 - 16	16.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GEO-1	5 - 20	25.88	--	--	11.36	14.52	11.38	14.5	11.73	14.15	11.93	13.95	12.1	13.78	12.21	13.67	11.98	13.9
GEO-2	5 - 20	26.54	--	--	11.97	14.57	11.99	14.55	12.4	14.14	13.6	12.94	12.81	13.73	12.91	13.63	12.63	13.91
GEO-3	5 - 20	25.64	11.49	14.15	10.76	14.88	11.04	14.6	11.94	13.7	--	--	12.7	12.94	12.94	12.7	12.61	13.03
GEO-4	4 - 19	21.69	11.03	10.66	10.51	11.18	10.87	10.82	11.64	10.05	12.09	9.6	12.55	9.14	13.02	8.67	12.64	9.05
GEO-5	5 - 20	20.14	10.15	9.99	9.7	10.44	10.01	10.13	10.79	9.35	11.25	8.89	11.74	8.4	11.18	8.96	11.72	8.42
GEO-6	5 - 20	17.62	8.54	9.08	8.32	9.3	8.25	9.37	8.9	8.72	9.5	8.12	9.92	7.7	10.22	7.4	9.96	7.66
SH-1	9 - 14	29.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-2	7 - 14	29.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-3	8 - 13	29.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-4	11 - 16	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-5	8 - 13	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW1	10 - 30	24.02	--	--	12.01	12.01	12.26	11.76	--	--	--	--	--	--	--	--	--	--
SH-MW2	10 - 25	24.27	--	--	12.61	11.66	12.74	11.53	13.25	11.02	13.48	10.79	13.72	10.55	14.04	10.23	13.68	10.59
SH-MW3	10 - 24	22.31	--	--	10.81	11.5	--	--	11.72	10.59	12.08	10.23	12.43	9.88	12.79	9.52	12.41	9.9
MW201	11-21	27.51	--	--	--	--	--	--	--	--	--	--	13.71	13.8	13.83	13.68	13.58	13.93
MW202	10.5-20.5	27.82	--	--	--	--	--	--	--	--	--	--	13.99	13.83	14.08	13.74	13.88	13.94
MW203	6-18	21.80	--	--	--	--	--	--	--	--	--	--	14.05	7.75	14.39	7.41	13.86	7.94

- General Notes:**
1. ft = feet.
  2. bgs = below ground surface.
  3. ID = identification.
  4. GW = groundwater.
  5. NAVD = North American Vertical Datum of 1988.
  6. The top of the PVC riser was used as the measuring point for depth to groundwater.
  7. "--" = Well not yet installed, abandoned, or not measured.





**Table 7-1. Groundwater Elevations**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 50 Tufts Street  
 Somerville, Massachusetts

Monitoring Well ID	Well Screen Interval (ft bgs)	Gauging Date: Elevation of Measuring Point (ft NAVD)	11/30/2007		1/9/2008		2/26/2008		3/18/2008		4/15/2008		5/19/2008		7/14/08		8/22/08	
			Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	11.95	13.95	--	--	--	--	--	--	11.42	14.48	11.57	14.33	--	--	--	--
MW-2	unknown	25.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	unknown	25.31	13.75	11.56	12.86	12.45	12.05	13.26	12.37	12.94	12.81	12.5	12.99	--	--	--	--	
MW-101	9-19	26.75	13.82	12.93	12.11	14.64	--	--	11.85	14.9	12.02	14.73	12.26	14.49	13.11	13.64	--	--
MW-102	6-16	18.89	8.01	10.88	7.46	11.43	7.29	11.6	7.17	11.72	8.57	10.32	7.9	10.99	9.51	9.38	8.00	10.89
MW-103	6-16	19.47	12.18	7.29	10.74	8.73	10.51	8.96	10.5	8.97	10.82	8.65	11.11	8.36	12.17	7.30	11.17	8.30
MW-104	5-15	17.67	10.07	7.6	8.86	8.81	8.61	9.06	8.48	9.19	9.84	7.83	9.25	9.67	8.00	9.06	8.61	8.61
MW-105	19-29	38.84	22.74	16.1	21.39	17.45	20.79	18.05	20.41	18.43	20.91	17.93	21.24	17.6	22.02	16.82	21.40	17.44
MW-106	9 - 19	26.33	12.27	14.06	11.71	14.62	11.51	14.82	11.38	14.95	12.54	13.79	11.72	14.61	11.68	14.65	11.73	14.60
MW-107	2 - 12	14.63	4.44	10.19	4.35	10.28	--	--	4.46	10.17	5.58	9.05	--	--	10.11	10.22	4.41	10.22
MW-108	2 - 12	12.74	4.74	8.0	3.71	9.03	4.61	8.13	3.68	9.06	3.91	8.83	3.99	8.75	5.16	7.58	4.44	8.30
MW-109	3 - 13	24.12	12.78	11.34	10.64	13.48	10.06	14.06	10.02	14.1	11.64	12.48	11.29	12.83	11.87	12.25	11.18	12.94
MW-110	3 - 13	15.58	3.34	12.24	--	--	0.79	14.79	1.12	14.46	1.57	14.01	2.5	13.08	--	--	3.59	11.99
MW-111	4 - 14	18.95	12.27	6.68	10.51	8.44	10.5	8.45	10.54	8.41	16.64	2.31	10.71	8.24	12.23	6.72	10.73	8.22
MW-112	3 - 10	18.16	Dry	Dry	Dry	Dry	Dry	Dry	--	--	--	--	--	--	--	--	8.33	9.83
MW-112a	4-19	17.78	--	--	12.43	5.35	12.52	5.26	12.61	5.17	13.71	4.07	12.77	5.01	13.56	4.22	12.93	4.85
MW-113	10-20	26.16	12.6	13.56	11.5	14.66	11.28	14.88	11.15	15.01	11.39	14.77	11.62	14.54	12.01	14.15	11.63	14.53
MW-114	7-17	29.43	14.31	15.12	12.08	17.35	11.11	18.32	10.75	18.68	12.42	17.01	12.3	17.13	13.24	16.19	12.21	17.22
MW-115	10-25	27.15	18.24	8.91	16.18	10.97	15.85	11.3	15.86	11.29	16.45	10.7	16.72	10.43	18.49	8.66	16.78	10.37
MW-116	5-15	13.45	--	--	8.6	4.85	8.68	4.77	8.77	4.68	8.85	4.6	8.88	4.57	9.09	4.36	9.01	4.44
MW-117S	5 - 20	21.94	15.95	5.99	13.97	7.97	13.52	8.42	13.5	8.44	14.22	7.72	14.6	7.34	14.99	6.95	13.90	8.04
MW-117T	35 - 45	21.87	16.58	5.29	14.58	7.29	13.97	7.9	13.9	7.97	14.67	7.2	14.94	6.93	15.68	6.19	15.27	6.60
MW-117D	60 - 70	21.78	16.44	5.34	14.46	7.32	13.86	7.92	13.81	7.97	14.51	7.27	14.89	6.89	15.61	6.17	14.67	7.11
MW-118S	3 - 14	15.52	9.4	6.12	8.55	6.97	8.34	7.18	8.4	7.12	10	5.52	9.38	6.14	9.64	5.88	8.48	7.04
MW-118T	39.5 - 49.5	15.30	10.5	4.8	9.93	5.37	9.49	5.81	9.53	5.77	9.83	5.47	9.94	5.36	10.35	4.95	9.92	5.38
MW-118D	70 - 80	15.15	10.25	4.9	9.55	5.6	9.3	5.85	9.35	5.8	9.64	5.51	9.8	5.35	10.11	5.04	9.70	5.45
MW-119S	5 - 20	11.74	4.85	6.89	4.63	7.11	4.6	7.14	4.56	7.18	4.91	6.83	4.92	6.82	4.94	6.80	6.08	5.66
MW-119T	42 - 47	11.67	6.57	5.1	5.82	5.85	5.63	6.04	5.78	5.89	5.97	5.7	6.1	5.57	6.52	5.15	4.52	7.15
MW-120S	5 - 20	12.54	4.62	7.92	3.51	9.03	4.06	8.48	4.0	8.54	5.1	7.44	4.57	7.97	5.18	7.36	4.61	7.93
MW-120D	28 - 38	12.45	3.48	8.97	3.17	9.28	2.96	9.49	3.11	9.34	3.26	9.19	3.44	9.01	3.82	8.63	2.90	9.55
MW-121S	5 - 20	12.44	7.41	5.03	7.24	5.2	7.36	5.08	7.41	5.03	9.39	3.05	7.29	5.15	9.21	3.23	7.70	4.74
MW-121D	32 - 47	12.81	7.75	5.06	6.95	5.86	6.83	5.98	6.91	5.9	7.31	5.5	7.27	5.54	7.64	5.17	7.30	5.51
MW-122	4 - 16	16.42	--	--	--	--	12.98	3.44	13	3.42	13.03	3.39	12.99	3.43	13.15	3.27	13.17	3.25
GEO-1	5 - 20	25.88	11.91	13.97	11.41	14.47	11.22	14.66	--	--	11.25	14.63	11.4	14.48	12.32	13.56	12.00	13.88
GEO-2	5 - 20	26.54	12.57	13.97	12.02	14.52	11.77	14.77	--	--	12.81	13.73	12.01	14.53	11.73	14.81	11.41	15.13
GEO-3	5 - 20	25.64	12.54	13.1	10.99	14.65	10.71	14.93	--	--	10.97	14.67	--	--	12.05	13.59	11.57	14.07
GEO-4	4 - 19	21.69	12.47	9.22	11.72	9.97	10.36	11.33	10.34	11.35	11.46	10.23	11.13	10.56	11.60	10.09	11.16	10.53
GEO-5	5 - 20	20.14	12.62	7.52	9.92	10.22	9.42	10.72	9.52	10.62	10.8	9.34	10.21	9.93	10.89	9.25	10.28	9.86
GEO-6	5 - 20	17.62	9.96	7.66	8.21	9.41	7.78	9.84	7.86	9.76	9.11	8.51	8.51	9.11	9.20	8.42	7.91	9.71
SH-1	9 - 14	29.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-2	7 - 14	29.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-3	8 - 13	29.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-4	11 - 16	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-5	8 - 13	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW1	10 - 30	24.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW2	10 - 25	24.27	13.85	10.42	12.77	11.5	12.49	11.78	12.46	11.81	13.62	10.65	12.89	11.38	11.83	12.44	12.92	11.35
SH-MW3	10 - 24	22.31	12.05	10.26	11.55	10.76	10.68	11.63	10.65	11.66	11.83	10.48	11.21	11.1	13.27	9.04	11.30	11.01
MW201	11-21	27.51	13.5	14.01	12.98	14.53	12.76	14.75	12.64	14.87	12.85	14.66	13.94	13.57	13.31	14.2	13.00	14.51
MW202	10.5-20.5	27.82	13.81	14.01	13.41	14.41	13.22	14.6	13.12	14.7	12.73	15.09	13.37	14.45	13.68	14.14	13.41	14.41
MW203	6-18	21.80	13.61	8.19	12.86	8.94	12.03	9.77	12	9.8	13.31	8.49	12.68	9.12	13.15	8.65	12.55	9.25

- General Notes:**
1. ft = feet.
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  3. ID = identification.
  4. GW = groundwater.
  5. NAVD = North American Vertical Datum of 1988.
  6. The top of the PVC riser was used as the measuring point for depth to groundwater.
  7. "--" = Well not yet installed, abandoned, or not measured.





**Table 7-1. Groundwater Elevations**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 50 Tufts Street  
 Somerville, Massachusetts

Monitoring Well ID	Well Screen Interval (ft bgs)	Gauging Date: Elevation of Measuring Point (ft NAVD)	10/20/08		1/13/09		4/13/09		7/14/09		10/14/09		4/12/10		10/27/10		4/20/11	
			Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	unknown	25.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	unknown	25.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-101	9-19	26.75	12.61	14.14	12.07	14.68	11.91	14.84	12.28	13.03	12.92	12.39	13.19	12.12	--	--	--	--
MW-102	6-16	18.89	8.49	10.4	7.50	11.39	7.35	11.54	7.85	11.04	7.99	10.9	7.11	11.78	--	--	7.04	11.85
MW-103	6-16	19.47	11.87	7.6	10.73	8.74	10.57	8.9	11.07	8.4	11.34	8.13	10.47	9.00	--	--	10.39	9.08
MW-104	5-15	17.67	9.72	7.95	8.71	9.96	7.98	8.84	8.83	9.38	8.84	8.83	9.38	9.15	--	--	9.28	8.39
MW-105	19-29	38.84	21.8	17.04	20.9	17.94	20.65	18.19	21.4	17.44	21.8	17.04	19.84	19.00	--	--	20.63	18.21
MW-106	9 - 19	26.33	11.64	14.69	11.6	14.73	11.49	14.84	overflowing	--	overflowing	--	11.16	15.17	--	--	11.39	14.94
MW-107	2 - 12	14.63	4.49	10.14	4.5	10.13	4.47	10.16	overflowing	--	overflowing	--	4.31	10.32	--	--	4.43	10.2
MW-108	2 - 12	12.74	4.71	8.03	3.4	9.34	3.73	9.01	4.37	8.37	4.66	8.08	3.86	8.88	--	--	3.56	9.18
MW-109	3 - 13	24.12	11.73	12.39	10.43	13.69	10.4	13.72	11.11	13.01	--	--	9.88	14.24	--	--	10.10	14.02
MW-110	3 - 13	15.58	--	--	1.45	14.13	1.1	14.48	2.88	12.7	2.42	13.16	1.39	14.19	--	--	1.67	13.91
MW-111	4 - 14	18.95	11.37	7.58	10.55	8.4	10.56	8.39	10.67	8.28	10.41	8.54	10.57	8.38	--	--	10.62	8.33
MW-112	3 - 10	18.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-112a	4-19	17.78	13.01	4.77	12.78	5.0	12.63	5.15	12.78	5.0	12.58	5.2	12.62	5.16	12.31	5.47	12.14	5.64
MW-113	10-20	26.16	11.99	14.17	11.41	14.75	11.23	14.93	11.56	14.6	11.73	14.43	10.93	15.23	--	--	11.00	15.16
MW-114	7-17	29.43	13.19	16.24	11.25	18.18	10.97	18.46	12.04	17.39	--	--	10.24	19.19	--	--	10.46	18.97
MW-115	10-25	27.15	17.8	9.35	16.35	10.8	15.4	11.75	16.58	10.57	17.4	9.75	16.43	10.72	--	--	16.22	10.93
MW-116	5-15	13.45	--	--	8.94	--	8.87	4.58	8.97	4.48	8.76	4.69	8.85	4.6	--	--	8.32	5.13
MW-117S	5 - 20	21.94	14.67	7.27	14.02	7.92	14.38	7.56	14.66	7.28	14.75	7.19	13.32	8.62	--	--	14.06	7.88
MW-117T	35 - 45	21.87	15.26	6.61	14.45	7.42	14.43	7.44	15.03	6.84	15.26	6.61	13.56	8.31	--	--	14.18	7.69
MW-117D	60 - 70	21.78	15.27	6.51	14.3	7.48	14.26	7.52	14.89	6.89	15.13	6.65	13.48	8.3	--	--	14.01	7.77
MW-118S	3 - 14	15.52	9.05	6.47	8.41	7.11	8.7	6.82	9.43	6.09	9.01	6.51	8.31	7.21	--	--	8.55	6.97
MW-118T	39.5 - 49.5	15.30	10.19	5.11	9.73	5.57	9.64	5.66	9.92	5.38	9.99	5.31	9.49	5.81	--	--	9.33	5.97
MW-118D	70 - 80	15.15	9.99	5.16	9.54	5.61	9.47	5.68	9.74	5.41	9.73	5.42	9.29	5.86	--	--	9.15	6.00
MW-119S	5 - 20	11.74	4.08	7.66	4.41	7.33	4.21	7.53	4.47	7.27	4.33	7.41	4.33	7.41	--	--	4.08	7.66
MW-119T	42 - 47	11.67	6.78	4.89	5.85	5.82	5.8	5.87	6.04	5.63	6.01	5.66	5.68	5.99	--	--	5.55	6.12
MW-120S	5 - 20	12.54	4.01	8.53	4.03	8.51	3.85	8.69	4.31	8.23	3.58	8.96	3.98	8.56	--	--	3.65	8.89
MW-120D	28 - 38	12.45	3.32	9.13	3.18	9.27	3.11	9.34	3.31	9.27	3.29	9.16	3.04	9.41	--	--	3.18	9.27
MW-121S	5 - 20	12.44	9.01	3.43	7.68	4.76	7.57	4.87	7.62	4.82	7.71	4.73	7.67	4.77	--	--	7.12	5.32
MW-121D	32 - 47	12.81	9.64	3.17	7.07	5.74	6.98	5.83	7.27	5.54	7.37	5.44	6.87	5.94	--	--	6.77	6.04
MW-122	4 - 16	16.42	11.42	5.0	13.15	3.27	13.16	3.26	13.14	3.28	13.12	3.3	13.09	3.33	13.04	3.38	13.06	3.36
GEO-1	5 - 20	25.88	12.14	13.74	11.26	14.62	11.07	14.81	11.31	14.57	11.54	14.34	17.06	8.82	--	--	10.92	14.96
GEO-2	5 - 20	26.54	11.58	14.96	11.88	14.66	11.7	14.84	11.99	14.55	12.25	14.29	11.41	15.13	--	--	10.55	15.99
GEO-3	5 - 20	25.64	--	--	--	--	10.86	14.78	11.48	14.16	11.79	13.85	10.27	15.37	--	--	10.62	15.02
GEO-4	4 - 19	21.69	11.89	9.8	10.56	11.13	10.21	11.48	11.00	10.69	--	--	10.26	11.43	--	--	--	--
GEO-5	5 - 20	20.14	11.79	8.35	9.70	10.44	9.30	10.84	10.08	10.06	10.44	9.7	9.48	10.66	--	--	9.18	10.96
GEO-6	5 - 20	17.62	10.95	6.67	8.02	9.6	7.48	10.14	8.18	9.44	8.66	8.96	7.62	10	--	--	7.63	9.99
SH-1	9 - 14	29.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-2	7 - 14	29.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-3	8 - 13	29.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-4	11 - 16	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-5	8 - 13	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW1	10 - 30	24.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW2	10 - 25	24.27	12.01	12.26	12.63	11.64	12.33	11.94	12.77	11.5	13.01	11.26	10.61	13.66	--	--	12.29	11.98
SH-MW3	10 - 24	22.31	12.49	9.82	10.87	11.44	10.52	11.79	11.12	11.19	11.46	10.85	12.39	9.92	--	--	10.46	11.85
MW201	11-21	27.51	14.64	12.87	13.27	14.24	12.69	14.82	12.94	14.57	13.09	14.42	12.42	15.09	--	--	12.57	14.94
MW202	10.5-20.5	27.82	13.29	14.53	12.82	15	13.15	14.67	13.33	14.49	13.55	14.27	12.94	14.88	--	--	13.02	14.80
MW203	6-18	21.80	13.02	8.78	12.25	9.55	11.5	10.3	12.29	9.51	12.77	9.03	12.03	9.77	--	--	11.83	9.97

- General Notes:**
1. ft = feet.
  2. bgs = below ground surface.
  3. ID = identification.
  4. GW = groundwater.
  5. NAVD = North American Vertical Datum of 1988.
  6. The top of the PVC riser was used as the measuring point for depth to groundwater.
  7. "--" = Well not yet installed, abandoned, or not measured.





**Table 7-1. Groundwater Elevations**  
 Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
 50 Tufts Street  
 Somerville, Massachusetts

Monitoring Well ID	Well Screen Interval (ft bgs)	Gauging Date: Elevation of Measuring Point (ft NAVD)	11/16/11		4/16/12		11/12/12		4/23/13		11/18/13		4/30/14		6/11/14	
			Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)	Depth to GW (ft)	Elevation of GW (ft NAVD)
MW-1	unknown	25.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	unknown	25.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	unknown	25.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-101	9-19	26.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-102	6-16	18.89	--	--	12.71	14.04	--	--	12.41	14.34	--	--	12.03	14.72	--	--
MW-103	6-16	19.47	--	--	8.53	10.36	--	--	8.01	10.88	--	--	7.68	11.21	--	--
MW-104	5-15	17.67	--	--	11.79	7.68	--	--	11.22	8.25	--	--	10.96	8.51	--	--
MW-105	19-29	38.84	--	--	10.24	7.43	--	--	9.64	8.03	--	--	9.5	8.17	--	--
MW-106	9 - 19	26.33	--	--	--	--	--	--	21.31	17.53	--	--	--	--	--	--
MW-107	2 - 12	14.63	--	--	--	--	--	--	--	--	--	--	11.71	14.62	--	--
MW-108	2 - 12	12.74	--	--	--	--	--	--	--	--	--	--	3.61	11.02	--	--
MW-109	3 - 13	24.12	--	--	4.72	8.02	--	--	4.34	8.4	--	--	4.09	8.65	--	--
MW-110	3 - 13	15.58	--	--	12.15	11.97	--	--	11.37	12.75	--	--	10.79	13.33	--	--
MW-111	4 - 14	18.95	--	--	--	--	--	--	--	--	--	--	2.61	12.97	--	--
MW-112	3 - 10	18.16	--	--	11.6	7.35	--	--	11.01	7.94	--	--	10.96	7.99	--	--
MW-112a	4-19	17.78	12.30	5.48	--	--	--	--	--	--	--	--	--	--	--	--
MW-113	10-20	26.16	--	--	12.70	5.08	12.72	5.06	12.80	4.98	13.11	4.67	--	--	12.86	4.92
MW-114	7-17	29.43	--	--	12.11	14.05	--	--	11.73	14.43	--	--	11.42	14.74	--	--
MW-115	10-25	27.15	--	--	13.70	15.73	--	--	12.24	17.19	--	--	12.05	17.38	--	--
MW-116	5-15	13.45	--	--	18.51	8.64	--	--	17.76	9.39	--	--	17.51	9.64	--	--
MW-117S	5 - 20	21.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117T	35 - 45	21.87	--	--	9.06	12.88	--	--	14.39	7.55	--	--	13.63	8.31	--	--
MW-117D	60 - 70	21.78	--	--	15.58	6.29	--	--	15.19	6.68	--	--	14.78	7.09	--	--
MW-118S	3 - 14	15.52	--	--	15.81	5.97	--	--	15.09	6.69	--	--	14.71	7.07	--	--
MW-118T	39.5 - 49.5	15.30	--	--	9.66	5.86	--	--	9.41	6.11	--	--	9.01	6.51	--	--
MW-118D	70 - 80	15.15	--	--	10.30	5	--	--	10.12	5.18	--	--	9.94	5.36	--	--
MW-119S	5 - 20	11.74	--	--	10.11	5.04	10.03	5.12	10.00	5.15	10.73	4.42	9.82	5.33	--	--
MW-119T	42 - 47	11.67	--	--	5.14	6.6	--	--	4.70	7.04	--	--	4.31	7.43	--	--
MW-120S	5 - 20	12.54	--	--	6.50	5.17	--	--	6.25	5.42	--	--	6.11	5.56	--	--
MW-120D	28 - 38	12.45	--	--	4.78	7.76	--	--	4.26	8.28	--	--	4.19	8.35	--	--
MW-121S	5 - 20	12.44	--	--	3.87	8.58	--	--	3.40	9.05	--	--	4.41	8.04	--	--
MW-121D	32 - 47	12.81	--	--	7.26	5.18	--	--	6.93	5.51	--	--	5.95	6.49	--	--
MW-122	4 - 16	16.42	13.16	3.26	7.69	5.12	7.55	5.26	7.41	5.4	8.13	4.68	7.35	5.46	--	--
GEO-1	5 - 20	25.88	--	--	13.1	3.32	13.16	3.26	13.14	3.28	13.12	3.3	13.12	3.3	--	--
GEO-2	5 - 20	26.54	--	--	--	--	--	--	11.50	14.38	--	--	11.19	14.69	--	--
GEO-3	5 - 20	25.64	--	--	11.81	14.73	--	--	12.19	14.35	--	--	11.99	14.55	--	--
GEO-4	4 - 19	21.69	--	--	12.21	13.43	--	--	11.57	14.07	--	--	11.10	14.54	--	--
GEO-5	5 - 20	20.14	--	--	11.98	9.71	--	--	11.29	10.4	--	--	11.09	10.6	--	--
GEO-6	5 - 20	17.62	--	--	11.18	8.96	--	--	10.45	9.69	--	--	10.25	9.89	--	--
SH-1	9 - 14	29.55	--	--	9.54	8.08	--	--	8.56	9.06	--	--	8.30	9.32	--	--
SH-2	7 - 14	29.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-3	8 - 13	29.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-4	11 - 16	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-5	8 - 13	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW1	10 - 30	24.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW2	10 - 25	24.27	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW3	10 - 24	22.31	--	--	13.53	10.74	--	--	13.13	11.14	--	--	12.95	11.32	--	--
MW201	11-21	27.51	--	--	12.00	10.31	--	--	11.43	10.88	--	--	11.23	11.08	--	--
MW202	10.5-20.5	27.82	--	--	13.43	14.08	--	--	13.15	14.36	--	--	12.97	14.54	--	--
MW203	6-18	21.80	--	--	--	--	--	--	13.54	14.28	--	--	13.32	14.50	--	--
					13.85	7.95	--	--	13.15	8.65	--	--	12.92	8.88	--	--

- General Notes:**
1. ft = feet.
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  6. The top of the PVC riser was used as the measuring point for depth to groundwater.
  7. "--" = Well not yet installed, abandoned, or not measured.





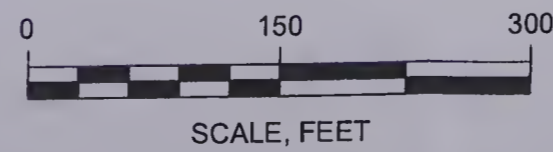


**LEGEND:**

- BORING BY KLEINFELDER, MARCH 2014 AND APRIL 2014
- MONITORING WELL BY KLEINFELDER, SEPTEMBER 2012, MARCH 2014, AND APRIL 2014
- MONITORING WELL WITH SOIL VAPOR SAMPLE PORT BY GEI, JANUARY 2007 - JANUARY 2008
- MONITORING WELL BY SANBORN HEAD ASSOCIATES, 2002
- MONITORING WELL BY GEOINSIGHT, JUNE 2004
- SOIL BORING BY GEOINSIGHT, AUGUST 2004
- MONITORING WELL BY GEI, MAY 2006
- DRIVEN POINT MONITORING WELL BY MADEP, MAY 2007
- MONITORING WELL INSTALLED PREVIOUSLY, DATE UNKNOWN
- PREVIOUSLY INSTALLED IRRIGATION WELL
- CHAIN LINK FENCE
- 138 ROOM NUMBER AT CAPUANO SCHOOL
- BOUNDARY OF COMMUNITY GARDENS
- 84 STREET ADDRESS
- MBTA = MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
- DISPOSAL SITE BOUNDARY (DASHED WHERE INFERRED)
- EXTENT OF PCE CONCENTRATION IN SHALLOW GROUNDWATER GREATER THAN OR EQUAL TO 20 µg/l
- EXTENT OF PCE CONCENTRATION IN SHALLOW GROUNDWATER GREATER THAN OR EQUAL TO 50 µg/l
- µg/l = MICROGRAMS PER LITER

**GENERAL NOTES:**

1. HORIZONTAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983.
2. STREET AND PROPERTY LINES BASED ON SOMERVILLE ASSESSORS' MAPS AND ARE BEST FIT RELATIVE TO THE LOCATION OF THE 50 TUFTS ST. BUILDING.
3. MONITORING WELL LOCATIONS AND ELEVATIONS, AND CAPUANO CENTER COMMUNITY GARDEN LOCATIONS WERE ESTABLISHED BY ON THE GROUND SURVEYS BY BSC GROUP, INC. OR INFORMATION PROVIDED BY KLEINFELDER
4. GEI OBSERVED DECOMMISSIONING OF SH-MW1 AND SH-1 THROUGH SH-5 IN 2007.
5. THE 20 µg/l AND 50 µg/l BOUNDARY LINES ARE BASED ON SHALLOW GROUNDWATER ANALYTICAL RESULTS (0 TO 15 FEET BELOW GROUND SURFACE) COLLECTED THROUGH MAY 2014. KE-204 IS A WELL SCREENED GREATER THAN 15 FEET BELOW GROUND SURFACE, BUT HAS BEEN INCLUDED IN THE 20 µg/l AND 50 µg/l BOUNDARY LINES BECAUSE OF UNCERTAINTY ON THE SHALLOW GROUNDWATER CONCENTRATIONS WITHIN THE IMMEDIATE VICINITY OF THIS WELL.



Phase V Status Report No. 6 and  
Remedial Monitoring Report No. 21  
50 Tufts Street, Somerville, Massachusetts  
UniFirst Corporation  
Wilmington, Massachusetts



DISPOSAL SITE MAP  
AND  
SITE BOUNDARY

Project 04516-3 August 2014 Fig. 1-2









Geotechnical  
Environmental and  
Water Resources  
Engineering



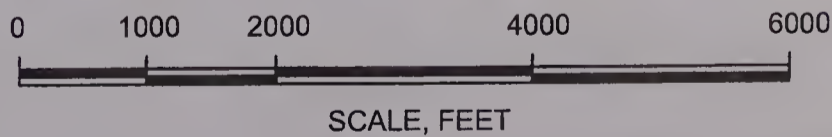


# Figures

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This Image provided by MassGIS is from U.S.G.S.  
 Topographic 7.5 X 15 Minute Series  
 Boston North, MA Quadrangle, 1985.  
 Datum is National Geodetic Vertical Datum (NGVD).  
 Contour Interval is 3 Meters.



Phase V Status Report No. 6 and  
 Remedial Monitoring Report No. 21  
 50 Tufts Street, Somerville, Massachusetts

UniFirst Corporation  
 Wilmington, Massachusetts



SITE LOCATION MAP

Project 04516-3

August 2014

Fig. 1-1



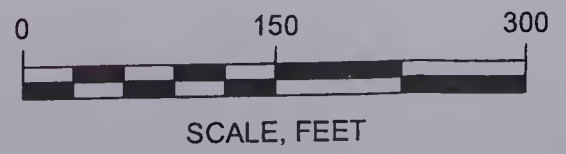






- LEGEND:**
- BORING BY KLEINFELDER, MARCH 2014 AND APRIL 2014
  - MONITORING WELL BY KLEINFELDER, SEPTEMBER 2012, MARCH 2014, AND APRIL 2014
  - MONITORING WELL WITH SOIL VAPOR SAMPLE PORT INSTALLED BY GEI, JANUARY 2007 - JANUARY 2008
  - MONITORING WELL INSTALLED BY SANBORN HEAD ASSOCIATES, 2002
  - MONITORING WELL INSTALLED BY GEOINSIGHT, JUNE 2004
  - MONITORING WELL INSTALLED BY GEI, MAY 2006
  - DRIVEN POINT MONITORING WELL INSTALLED BY MADEP, MAY 2007
  - MONITORING WELL INSTALLED PREVIOUSLY, DATE UNKNOWN
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  - CHAIN LINK FENCE
  - 138 ROOM NUMBER AT CAPUANO SCHOOL
  - BOUNDARY OF COMMUNITY GARDENS
  - 84 STREET ADDRESS
  - MONITORING WELL SAMPLED BY GEI DURING THIS REPORTING PERIOD
  - MONITORING WELL SAMPLED BY KLEINFELDER DURING THIS REPORTING PERIOD

- GENERAL NOTES:**
1. MONITORING WELL LOCATIONS AND ELEVATIONS, AND CAPUANO CENTER COMMUNITY GARDEN LOCATIONS WERE ESTABLISHED BY ON THE GROUND SURVEYS BY BSC GROUP, INC.
  2. HORIZONTAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983.
  3. VERTICAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988.
  4. STREET PROPERTY LINES, AND BUILDINGS ARE BASED ON SOMERVILLE ASSESSORS MAPS AND ARE BEST FIT RELATIVE TO THE LOCATION OF THE 50 TUFTS ST. BUILDING.
  5. GEI OBSERVED ABANDONMENT OF SH-MW1 AND SH-1 THROUGH SH-5 IN 2007.



Phase V Status Report No. 6 and  
Remedial Monitoring Report No. 21  
50 Tufts Street, Somerville, Massachusetts  
UniFirst Corporation  
Wilmington, Massachusetts



MONITORING WELL  
LOCATIONS  
Project 04516-3 August 2014 Fig. 2-1





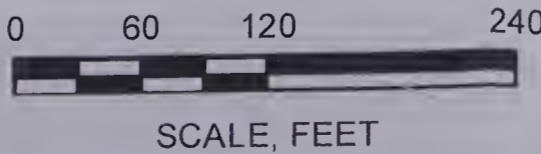






**LEGEND:**

 SOIL VAPOR SAMPLED  
 INDOOR AIR SAMPLED



Phase V Status Report No. 6 and  
Remedial Monitoring Report No. 21  
50 Tufts Street, Somerville, Massachusetts

UniFirst Corporation  
Wilmington, Massachusetts



Project 04516-3

SUB-SLAB SOIL VAPOR AND  
INDOOR AIR SAMPLING

August 2014

Fig. 2-2

N:\04516\20 0 GIS Data\Map\_Files\Phase IV Status Fig 2-2 IA and SV sampling.mxd





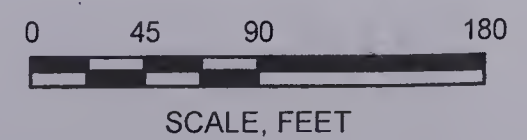




**LEGEND:**

EPMM STATUS

- EPMM INSTALLED (ACTIVE)
- EPMM INSTALLED (OTHER EPMM)
- EPMM RECOMMENDED




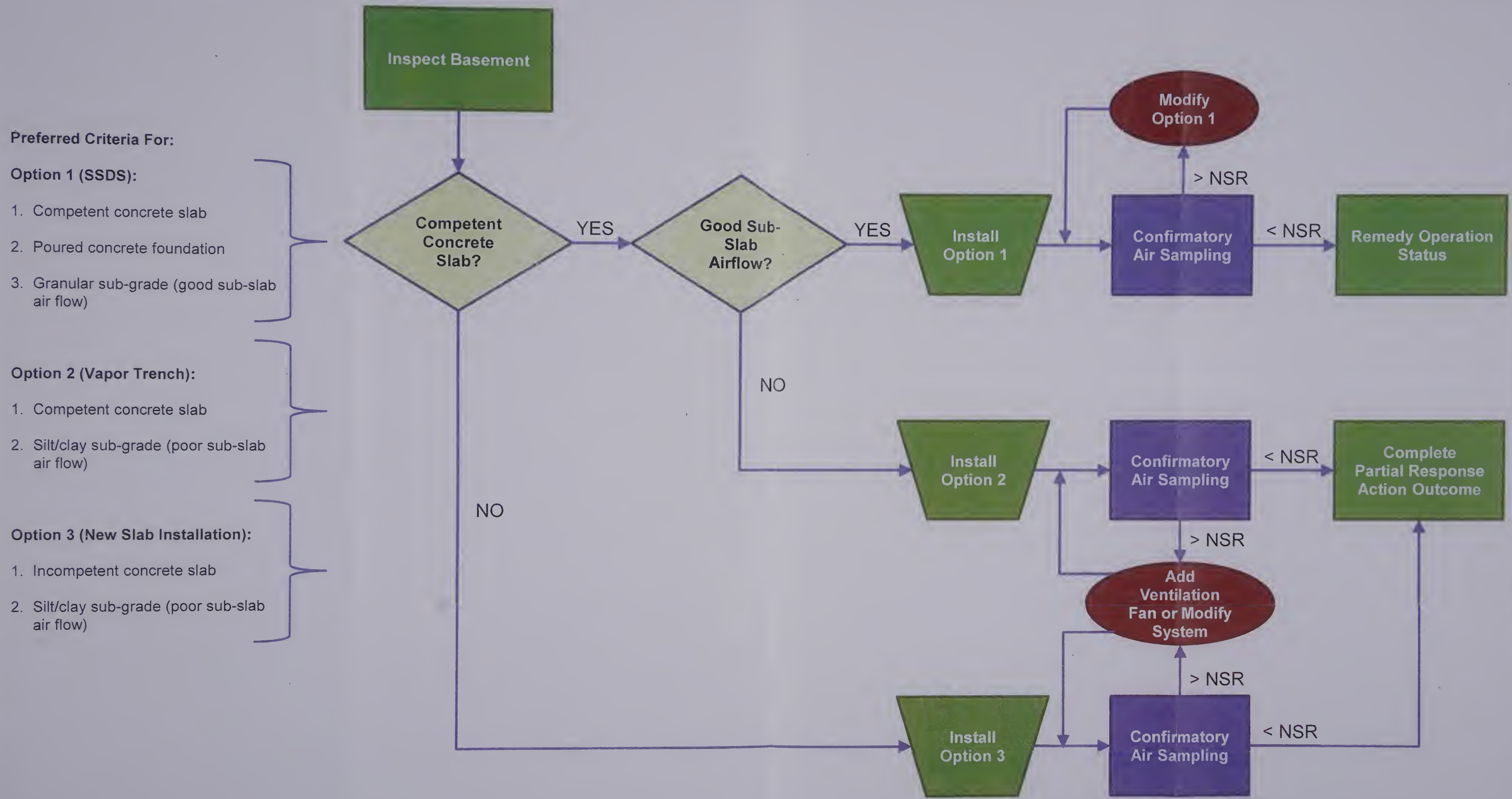
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21 50 Tufts Street, Somerville, Massachusetts		<b>EPMM INSTALLATION PROGRESS</b>
UniFirst Corporation Wilmington, Massachusetts	Project 04516-3	August 2014

Fig. 4-1









**Preferred Criteria For:**

**Option 1 (SSDS):**

- 1. Competent concrete slab
- 2. Poured concrete foundation
- 3. Granular sub-grade (good sub-slab air flow)


**Option 2 (Vapor Trench):**

- 1. Competent concrete slab
- 2. Silt/clay sub-grade (poor sub-slab air flow)

**Option 3 (New Slab Installation):**

- 1. Incompetent concrete slab
- 2. Silt/clay sub-grade (poor sub-slab air flow)

NSR = No Significant Risk

Phase V Status Report No. 6 and Remedial Monitoring Report No. 21 50 Tufts Street, Somerville, Massachusetts		EPMM MITIGATION FLOW CHART
UniFirst Corporation Wilmington, Massachusetts	Project 04516-3	August 2014 <span style="float: right;">Fig. 4-2</span>



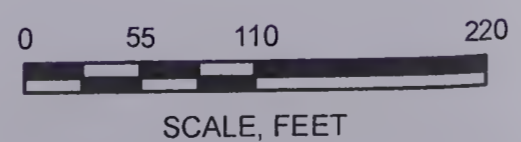




**LEGEND:**

**PERMANENT SOLUTION STATUS**

- PERMANENT SOLUTION WITH CONDITIONS PARTIAL STATEMENT SUBMITTED
- PERMANENT SOLUTION WITHOUT CONDITIONS PARTIAL STATEMENT SUBMITTED
- REMEDY OPERATION STATUS
- DISPOSAL SITE BOUNDARY (DASHED WHERE INFERRED)



Phase V Status Report No. 6 and  
Remedial Monitoring Report No. 21  
50 Tufts Street, Somerville, Massachusetts

UniFirst Corporation  
Wilmington, Massachusetts



**PERMANENT SOLUTION STATUS**

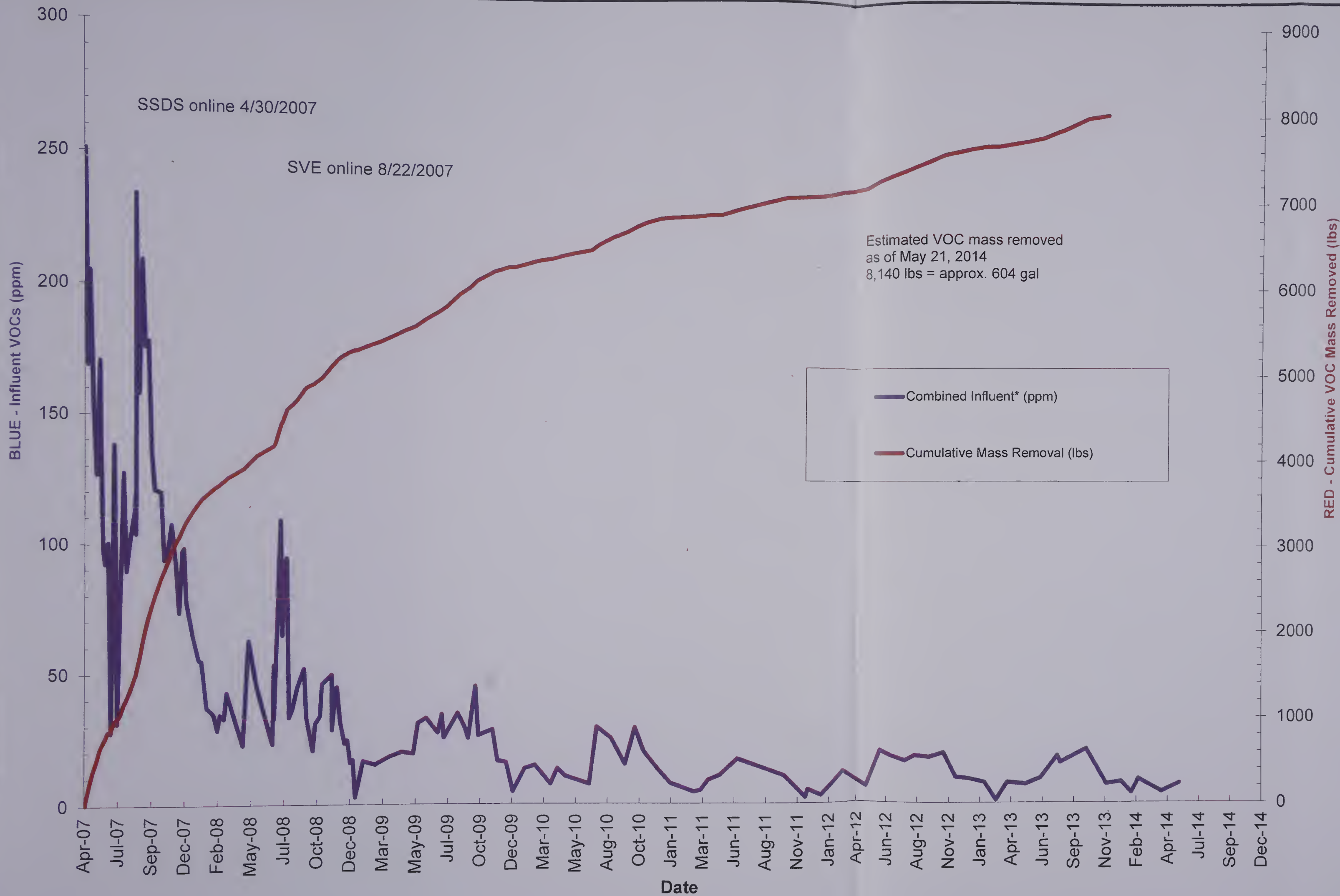
Project 04516-3 August 2014 Fig. 4-3

N:\04516\20 GIS Data\Map\_Files\Tufts\_St\_RAO\_Tracking (for reports).mxd








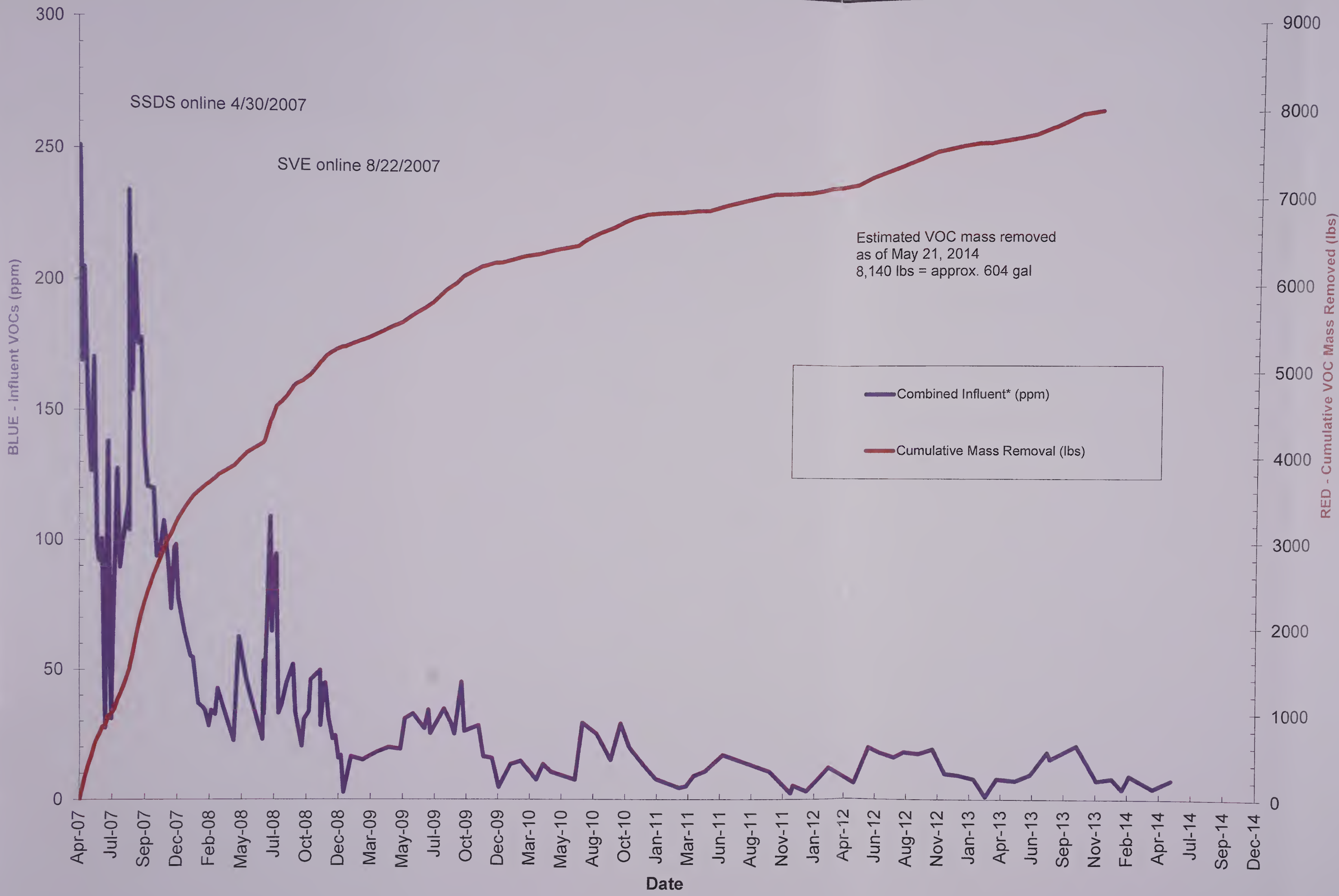


**General Notes:**

- lbs = pounds.
- PCE = tetrachloroethylene (perchloroethylene).
- ppm = parts per million.
- SSDS = sub-slab depressurization system.
- SVE = soil vapor extraction system.
- VOC = volatile organic compound.
- \*Influent concentrations measured by a photoionization detector (PID).

Phase V Status Report No. 6 and Remedial Monitoring Report No. 21 50 Tufts Street, Somerville, Massachusetts		COMBINED INFLUENT VOC CONCENTRATIONS AND CUMULATIVE VOC REMOVAL
UniFirst Corporation Wilmington, Massachusetts	Project 04516-3	August 2014 <span style="float: right;">Fig. 6-1</span>





**General Notes:**

lbs = pounds.  
 PCE = tetrachloroethylene (perchloroethylene).  
 ppm = parts per million.  
 SSDS = sub-slab depressurization system.  
 SVE = soil vapor extraction system.  
 VOC = volatile organic compound.  
 \*Influent concentrations measured by a photoionization detector (PID).

Phase V Status Report No. 6 and  
 Remedial Monitoring Report No. 21  
 50 Tufts Street, Somerville, Massachusetts

UniFirst Corporation  
 Wilmington, Massachusetts



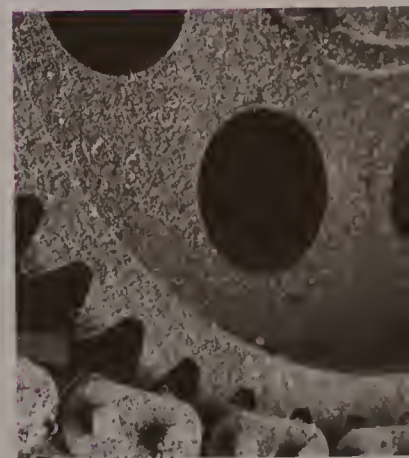
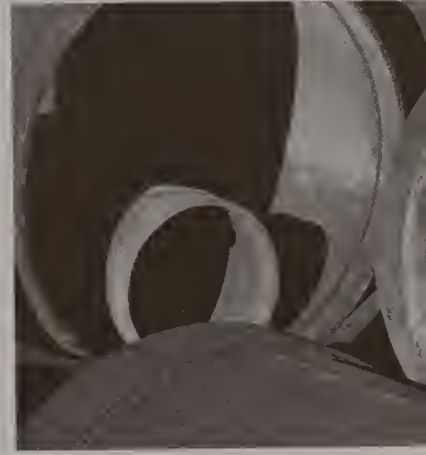
COMBINED INFLUENT VOC  
 CONCENTRATIONS AND  
 CUMULATIVE VOC REMOVAL







Geotechnical  
Environmental  
Water Resources  
Ecological







## Appendix A

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### MassDEP Transmittal Forms BWSC-108, BWSC-108A, BWSC-108B, BWSC-107, and eDEP Transmittal Receipts

#### Comprehensive Response Action Transmittal Forms:

- BWSC-108A 1 of 5 (50 Tufts SSDS)
- BWSC-108B 1 of 5 (50 Tufts SSDS)
- BWSC-108A 2 of 5 (50 Tufts SVE)
- BWSC-108B 2 of 5 (50 Tufts SVE)
- BWSC-108A 3 of 5 (Capuano Center)
- BWSC-108B 3 of 5 (Capuano Center)
- BWSC-108A 4 of 5 (Residences)
- BWSC-108A 5 of 5 (MNA)

#### Tier Classification Transmittal Forms:

- BWSC-107 (50 Tufts Street Site)





**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL  
FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

3 - 23246

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

**A. SITE LOCATION:**

1. Site Name: 50 TUFTS ST & PROP ACROSS THE ST  
2. Street Address: 50 TUFTS ST  
3. City/Town: SOMERVILLE 4. ZIP Code: 021454129

5. Check here if the disposal site that is the source of the release is Tier Classified. Check the current Tier Classification Category:  
 a. Tier I       b. Tier ID       c. Tier II

**B. THIS FORM IS BEING USED TO:** (check all that apply)

- 1. Submit a **Phase I Completion Statement**, pursuant to 310 CMR 40.0484.
- 2. Submit a **Revised Phase I Completion Statement**, pursuant to 310 CMR 40.0484.
- 3. Submit a **Phase II Scope of Work**, pursuant to 310 CMR 40.0834.
- 4. Submit an **interim Phase II Report**. This report does not satisfy the response action deadline requirements in 310 CMR 40.0500.
- 5. Submit a **final Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.
- 6. Submit a **Revised Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.
- 7. Submit a **Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.
- 8. Submit a **Revised Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.
- 9. Submit a **Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.
- 10. Submit a **Modified Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.
- 11. Submit an **As-Built Construction Report**, pursuant to 310 CMR 40.0875.
- 12. Submit a **Phase IV Status Report**, pursuant to 310 CMR 40.0877.
- 13. Submit a **Phase IV Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.

Specify the outcome of Phase IV activities: (check one)

- a. Phase V Operation, Maintenance or Monitoring of the Comprehensive Remedial Action is necessary to achieve a Permanent or Temporary Solution.
- b. The requirements of a Permanent Solution have been met. A completed Permanent Solution Statement and Report (BWSC104) will be submitted to DEP.
- c. The requirements of a Temporary Solution have been met. A completed Temporary Solution Statement and Report (BWSC104) will be submitted to DEP.







**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL  
FORM & PHASE I COMPLETION STATEMENT**

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

Release Tracking Number

3 - 23246

**B. THIS FORM IS BEING USED TO (cont.):** (check all that apply)

14. Submit a **Revised Phase IV Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.
15. Submit a **Phase V Status Report**, pursuant to 310 CMR 40.0892.
16. Submit a **Remedial Monitoring Report**. (This report can only be submitted through eDEP.)
- a. Type of Report: (check one)       i. Initial Report       ii. Interim Report       iii. Final Report
- b. Frequency of Submittal: (check all that apply)
- i. A Remedial Monitoring Report(s) submitted monthly to address an Imminent Hazard.
- ii. A Remedial Monitoring Report(s) submitted monthly to address a Condition of Substantial Release Migration.
- iii. A Remedial Monitoring Report(s) submitted every six months, concurrent with a Status Report.
- iv. A Remedial Monitoring Report(s) submitted annually, concurrent with a Status Report.
- c. Status of Site: (check one)       i. Phase IV       ii. Phase V       iii. Remedy Operation Status       iv. Temporary Solution
- d. Number of Remedial Systems and/or Monitoring Programs:      5

A separate BWSC108A, CRA Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.

17. Submit a **Remedy Operation Status**, pursuant to 310 CMR 40.0893.
18. Submit a **Status Report to maintain a Remedy Operation Status**, pursuant to 310 CMR 40.0893(2).
19. Submit a **Transfer and/or a Modification of Persons Maintaining a Remedy Operation Status (ROS)**, pursuant to 310 CMR 40.0893(5) (check one, or both, if applicable).
- a. Submit a Transfer of Persons Maintaining an ROS (the transferee should be the person listed in Section D, "Person Undertaking Response Actions").
- b. Submit a Modification of Persons Maintaining an ROS (the primary representative should be the person listed in Section D, "Person Undertaking Response Actions").
- c. Number of Persons Maintaining an ROS not including the primary representative: \_\_\_\_\_
20. Submit a **Termination of a Remedy Operation Status**, pursuant to 310 CMR 40.0893(6).(check one)
- a. Submit a notice indicating ROS performance standards have not been met. A plan and timetable pursuant to 310 CMR 40.0893(6) (b) for resuming the ROS are attached.
- b. Submit a notice of Termination of ROS.
21. Submit a **Phase V Completion Statement**, pursuant to 310 CMR 40.0894.
- Specify the outcome of Phase V activities: (check one)
- a. The requirements of a Permanent Solution have been met. A completed Permanent Solution Statement and Report (BWSC104) will be submitted to DEP.
- b. The requirements for a Temporary Solution have been met. A completed Temporary Solution Statement and Report (BWSC104) will be submitted to DEP.
22. Submit a **Revised Phase V Completion Statement**, pursuant to 310 CMR 40.0894.
23. Submit a **Temporary Solution Status Report**, pursuant to 310 CMR 40.0898.
24. Submit a **Plan for the Application of Remedial Additives** near a sensitive receptor, pursuant to 310 CMR 40.0046(3).
- a. Status of Site: (check one)
- i. Phase IV       ii. Phase V       iii. Remedy Operation Status       iv. Temporary Solution







**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL  
FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

3 - 23246

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

**C. LSP SIGNATURE AND STAMP:**

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B indicates that a **Phase I, Phase II, Phase III, Phase IV or Phase V Completion Statement and/or a Termination of a Remedy Operation Status** is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B indicates that a **Phase II Scope of Work or a Phase IV Remedy Implementation Plan** is being submitted, the response action (s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B indicates that an **As-Built Construction Report, a Remedy Operation Status, a Phase IV, Phase V or Temporary Solution Status Report, a Status Report to Maintain a Remedy Operation Status, a Transfer or Modification of Persons Maintaining a Remedy Operation Status and/or a Remedial Monitoring Report** is being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP#: 9719

2. First Name: ILEENS 3. Last Name: GLADSTONE

4. Telephone: 781-721-4012 5. Ext.: 6. Email:

7. Signature: ILEENS GLADSTONE

8. Date: 8/1/2014 9. LSP Stamp:

(mm/dd/yyyy)







**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL  
FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

3 - 23246

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

**D. PERSON UNDERTAKING RESPONSE ACTIONS:**

1. Check all that apply:  a. change in contact name  b. change of address  c. change in the person undertaking response actions

2. Name of Organization: UNIFIRST CORPORATION

3. Contact First Name: TIMOTHY 4. Last Name: COSGRAVE

5. Street: 68 JONSPIN RD 6. Title: SENIOR MGR EH&S

7. City/Town: WILMINGTON 8. State: MA 9. ZIP Code: 018871090

10. Telephone: 978-658-8888 11. Ext: 4332 12. Email: \_\_\_\_\_

**E. RELATIONSHIP TO SITE OF PERSON UNDERTAKING RESPONSE ACTIONS:**  Check here to change relationship

1. RP or PRP  a. Owner  b. Operator  c. Generator  d. Transporter

e. Other RP or PRP Specify: OTHER PRPS

2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

4. Any Other Person Undertaking Response Actions Specify Relationship: \_\_\_\_\_

**F. REQUIRED ATTACHMENT AND SUBMITTALS:**

- 1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.
- 2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of any Phase Reports to DEP.
- 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase III Remedial Action Plan.
- 4. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase IV Remedy Implementation Plan.
- 5. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of any field work involving the implementation of a Phase IV Remedial Action.
- 6. If submitting a Transfer of a Remedy Operation Status (as per 310 CMR 40.0893(5)), check here to certify that a statement detailing the compliance history for the person making this submittal (transferee) is attached.
- 7. If submitting a Modification of a Remedy Operation Status (as per 310 CMR 40.0893(5)), check here to certify that a statement detailing the compliance history for each new person making this submittal is attached.
- 8. Check here if any non-updatable information provided on this form is incorrect. e.g. Release Address/Location Aid. Send corrections to: BWSC.eDEP@state.ma.us.
- 9. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.







**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL  
FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

3 - 23246

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

**G. CERTIFICATION OF PERSON UNDERTAKING RESPONSE ACTIONS:**

I, TIMOTHY COSGRAVE, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

>if Section B indicates that this is a **Modification of a Remedy Operation Status (ROS)**, I attest under the pains and penalties of perjury that I am fully authorized to act on behalf of all persons performing response actions under the ROS as stated in 310 CMR 40.0893(5)(d) to receive oral and written correspondence from MassDEP with respect to performance of response actions under the ROS, and to receive a statement of fee amount as per 4.03(3).

I understand that any material received by the Primary Representative from MassDEP shall be deemed received by all the persons performing response actions under the ROS, and I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate or incomplete information.

2. By: TIMOTHY COSGRAVE 3. Title: SENIOR MGR EH&S  
Signature

4. For: UNIFIRST CORPORATION 5. Date: 8/1/2014  
(Name of person or entity recorded in Section D) (mm/dd/yyyy)

6. Check here if the address of the person providing certification is different from address recorded in Section D.

7. Street: \_\_\_\_\_

8. City/Town: \_\_\_\_\_ 9. State: \_\_\_\_\_ 10. ZIP Code: \_\_\_\_\_

11. Telephone: \_\_\_\_\_ 12. Ext: \_\_\_\_\_ 13. Email: \_\_\_\_\_

**YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.**

Date Stamp (DEP USE ONLY:)

Received by DEP on 8/1/2014 1:15:35 PM





MassDEP RTN 3-23246  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
50 Tufts Street, Somerville, Massachusetts  
UniFirst Corporation  
August 1, 2014

**Additional supporting information for:**

**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL  
FORM & PHASE I COMPLETION STATEMENT**

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

**BWSC-108**, Section B, Question 18: Submit a **Status Report to maintain a Remedy Operation Status**, pursuant to 310 CMR 40.0893(2).

The Status Report to maintain ROS has been submitted via eDEP, Transmittal No. **668619** as part of the "Phase V Status Report No. 6 and Remedial Monitoring Report No. 21," RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated August 1, 2014.





A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:

1. Type of Active Operation and Maintenance Activity: (check all that apply)

[x] a. Active Remedial System: (check all that apply)

- [ ] i. NAPL Recovery [ ] ii. Soil Vapor Extraction/Bioventing [ ] iii. Vapor-phase Carbon Adsorption
[ ] iv. Groundwater Recovery [ ] v. Dual/Multi-phase Extraction [ ] vi. Aqueous-phase Carbon Adsorption
[ ] vii. Air Stripping [ ] viii. Sparging/Biosparging [ ] ix. Cat/Thermal Oxidation
[x] x. Other Describe: SUB-SLAB DEPRESSURIZATION SYSTEM

[ ] b. Active Exposure Pathway Elimination Measure

Active Exposure Pathway Mitigation System to address (check one): [ ] i. Indoor Air [ ] ii. Drinking Water

[ ] c. Application of Remedial Additives: (check all that apply)

- [ ] i. To the Subsurface [ ] ii. To Groundwater (Injection) [ ] iii. To the Surface

[ ] d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (check all that apply; Sections C, D and E are not required; attach supporting information, data, maps and/or sketches needed by checking Section G5)

- [ ] i. Reactive Wall [ ] ii. Natural Attenuation [ ] iii. Other Describe:

2. Mode of Operation: (check one)

- [x] a. Continuous [ ] b. Intermittent [ ] c. Pulsed [ ] d. One-time Event Only [ ] e. Other:

3. System Effluent/Discharge: (check all that apply)

- [ ] a. Sanitary Sewer/POTW
[ ] b. Groundwater Re-infiltration/Re-injection: (check one) [ ] i. Downgradient [ ] ii. Upgradient
[x] c. Vapor-phase Discharge to Ambient Air: (check one) [x] i. Off-gas Controls [ ] ii. No Off-gas Controls
[ ] d. Drinking Water Supply
[ ] e. Surface Water (including Storm Drains)
[ ] f. Other Describe:

B. MONITORING FREQUENCY:

1. Reporting period that is the subject of this submittal:

From: 12/16/2013 To: 6/15/2014
(mm/dd/yyyy) (mm/dd/yyyy)

2. Number of monitoring events during the reporting period: (check one)

- [ ] a. System Startup: (if applicable)
[ ] i. Days 1, 3, 6, and then weekly thereafter, for the first month.
[ ] ii. Other Describe:
[x] b. Post-system Startup (after first month) or Monitoring Program:
[ ] i. Monthly
[ ] ii. Quarterly
[ ] iii. Annually
[x] iv. Other Describe: TOTAL VOCs, ~MONTHLY

[ ] 3. Check here to certify that the number of required monitoring events were conducted during the reporting period.

C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge limits were established)

- [ ] 1. NPDES: (check one) [ ] a. Remediation General Permit [ ] b. Individual Permit
[ ] c. Emergency Exclusion Effective Date of Permit: (mm/dd/yyyy)

[x] 2. MCP Performance Standard MCP Citations(s): WSC-94-150

[ ] 3. DEP Approval Letter Date of Letter: (mm/dd/yyyy)

[ ] 4. Other Describe:







CRA REMEDIAL MONITORING REPORT

Pursuant to 310 CMR 40.0800 (SUBPART H)

Release Tracking Number

Remedial System or Monitoring Program: 1 of 5

3 - 23246

A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:

1. Type of Active Operation and Maintenance Activity: (check all that apply)

[x] a. Active Remedial System: (check all that apply)

- [ ] i. NAPL Recovery [ ] ii. Soil Vapor Extraction/Bioventing [ ] iii. Vapor-phase Carbon Adsorption
[ ] iv. Groundwater Recovery [ ] v. Dual/Multi-phase Extraction [ ] vi. Aqueous-phase Carbon Adsorption
[ ] vii. Air Stripping [ ] viii. Sparging/Biosparging [ ] ix. Cat/Thermal Oxidation
[x] x. Other Describe: SUB-SLAB DEPRESSURIZATION SYSTEM

[ ] b. Active Exposure Pathway Elimination Measure

Active Exposure Pathway Mitigation System to address (check one): [ ] i. Indoor Air [ ] ii. Drinking Water

[ ] c. Application of Remedial Additives: (check all that apply)

- [ ] i. To the Subsurface [ ] ii. To Groundwater (Injection) [ ] iii. To the Surface

[ ] d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (check all that apply; Sections C, D and E are not required; attach supporting information, data, maps and/or sketches needed by checking Section G5)

- [ ] i. Reactive Wall [ ] ii. Natural Attenuation [ ] iii. Other Describe:

2. Mode of Operation: (check one)

- [x] a. Continuous [ ] b. Intermittent [ ] c. Pulsed [ ] d. One-time Event Only [ ] e. Other:

3. System Effluent/Discharge: (check all that apply)

- [ ] a. Sanitary Sewer/POTW
[ ] b. Groundwater Re-infiltration/Re-injection: (check one) [ ] i. Downgradient [ ] ii. Upgradient
[x] c. Vapor-phase Discharge to Ambient Air: (check one) [x] i. Off-gas Controls [ ] ii. No Off-gas Controls
[ ] d. Drinking Water Supply
[ ] e. Surface Water (including Storm Drains)
[ ] f. Other Describe:

B. MONITORING FREQUENCY:

1. Reporting period that is the subject of this submittal:

From: 12/16/2013 To: 6/15/2014
(mm/dd/yyyy) (mm/dd/yyyy)

2. Number of monitoring events during the reporting period: (check one)

- [ ] a. System Startup: (if applicable)
[ ] i. Days 1, 3, 6, and then weekly thereafter, for the first month.
[ ] ii. Other Describe:
[x] b. Post-system Startup (after first month) or Monitoring Program:
[ ] i. Monthly
[ ] ii. Quarterly
[ ] iii. Annually
[x] iv. Other Describe: TOTAL VOCS, ~MONTHLY

[ ] 3. Check here to certify that the number of required monitoring events were conducted during the reporting period.

C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge limits were established)

- [ ] 1. NPDES: (check one) [ ] a. Remediation General Permit [ ] b. Individual Permit
[ ] c. Emergency Exclusion Effective Date of Permit: (mm/dd/yyyy)

[x] 2. MCP Performance Standard MCP Citations(s): WSC-94-150

[ ] 3. DEP Approval Letter Date of Letter: (mm/dd/yyyy)

[ ] 4. Other Describe:







D. WASTEWATER TREATMENT PLANT OPERATOR: (check one)

- 1. Required due to Remedial Wastewater Treatment Plant in place for more than 30 days.
a. Name: b. Grade:
c. License No: d. License Exp. Date: (mm/dd/yyyy)
2. Not Required
3. Not Applicable

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (check all that apply)

- 1. The Active Remedial System was functional one or more days during the Reporting Period.
a. Days System was Fully Functional: 182 b. GW Recovered (gals):
c. NAPL Recovered (gals): d. GW Discharged (gals):
e. Avg. Soil Gas Recovery Rate (scfm): 313.62 f. Avg. Sparging Rate (scfm):

2. Remedial Additives: (check all that apply)

- a. No Remedial Additives applied during the Reporting Period.
b. Enhanced Bioremediation Additives applied: (total quantity applied at the site for the current reporting period)

i. Nitrogen/Phosphorus:

Table with 4 columns: Name of Additive, Date, Quantity, Units

ii. Peroxides:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iii. Microorganisms:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iv. Other:

Table with 4 columns: Name of Additive, Date, Quantity, Units

c. Chemical oxidation/reduction additives applied: (total quantity applied at the site for the current reporting period)

i. Permanganates:

Table with 4 columns: Name of Additive, Date, Quantity, Units

ii. Peroxides:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iii. Persulfates:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iv. Other:

Table with 4 columns: Name of Additive, Date, Quantity, Units





**E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (cont.)**

d. Other additives applied: (total quantity applied at the site for the current reporting period)

Name of Additive	Date	Quantity	Units

Name of Additive	Date	Quantity	Units

e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

**F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)**

1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Unscheduled Shutdowns: \_\_\_\_\_ b. Total Number of Days of Unscheduled Shutdowns: \_\_\_\_\_  
 c. Reason(s) for Unscheduled Shutdowns: \_\_\_\_\_

2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns: 1 b. Total Number of Days of Scheduled Shutdowns: 0.1  
 c. Reason(s) for Scheduled Shutdowns: CARBON CHANGE ON 06/02/2014, APPROXIMATELY 3 HOURS

3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown: \_\_\_\_\_  
 (mm/dd/yyyy)

b. No Further Effluent Discharges.

c. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

d. No Further Submittals Planned.

e. Other: Describe: \_\_\_\_\_

**G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)**

1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.







**CRA REMEDIAL MONITORING REPORT  
EFFLUENT/DISCHARGE CONCENTRATIONS**

Release Tracking Number

Pursuant to 310 CMR 40.0800 (SUBPART H)

3

23246

Remedial System or Monitoring Program:

1

of: 5

For each Point of Measurement, indicate the highest concentration detected during the reporting period, of each oil, hazardous material and/or remedial additive.

Point of Measurement	Date (mm/dd/yyyy)	Contaminant, Measurement and/or Indicator Parameter	Influent Concentration (where applicable)	Midpoint Concentration (where applicable)	(check one)		Permissible Concentration	Units	Within Permissible Limits? (Y/N)
					<input checked="" type="checkbox"/> Discharge	<input type="checkbox"/> GroundWater Concentration			
SSDS	01/24/2014	TOTAL VOCS	3.9		0.1	<input type="checkbox"/>	0.195	PPMV	YES
SSDS	02/04/2014	TOTAL VOCS	7.1			<input checked="" type="checkbox"/>	0.355	PPMV	YES
SSDS	02/10/2014	TOTAL VOCS	9.2		0.1	<input type="checkbox"/>	0.460	PPMV	YES
SSDS	04/07/2014	TOTAL VOCS	4.2			<input checked="" type="checkbox"/>	0.210	PPMV	YES
SSDS	05/21/2014	TOTAL VOCS	7.5		0.2	<input type="checkbox"/>	0.375	PPMV	YES

Check here if any additional BWSC108 B, Effluent/Discharge Concentrations Form, is needed.







Bureau of Waste Site Cleanup
CRA REMEDIAL MONITORING REPORT

Pursuant to 310 CMR 40.0800 (SUBPART H)

Release Tracking Number

Remedial System or Monitoring Program: 2 of 5

3 - 23246

A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:

1. Type of Active Operation and Maintenance Activity: (check all that apply)

- a. Active Remedial System: (check all that apply)
i. NAPL Recovery
ii. Soil Vapor Extraction/Bioventing
iii. Vapor-phase Carbon Adsorption
iv. Groundwater Recovery
v. Dual/Multi-phase Extraction
vi. Aqueous-phase Carbon Adsorption
vii. Air Stripping
viii. Sparging/Biosparging
ix. Cat/Thermal Oxidation
x. Other Describe:

b. Active Exposure Pathway Elimination Measure
Active Exposure Pathway Mitigation System to address (check one): i. Indoor Air ii. Drinking Water

c. Application of Remedial Additives: (check all that apply)
i. To the Subsurface
ii. To Groundwater (Injection)
iii. To the Surface

d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (check all that apply; Sections C, D and E are not required; attach supporting information, data, maps and/or sketches needed by checking Section G5)

i. Reactive Wall
ii. Natural Attenuation
iii. Other Describe:

2. Mode of Operation: (check one)

a. Continuous
b. Intermittent
c. Pulsed
d. One-time Event Only
e. Other:

3. System Effluent/Discharge: (check all that apply)

- a. Sanitary Sewer/POTW
b. Groundwater Re-infiltration/Re-injection: (check one)
i. Downgradient
ii. Upgradient
c. Vapor-phase Discharge to Ambient Air: (check one)
i. Off-gas Controls
ii. No Off-gas Controls
d. Drinking Water Supply
e. Surface Water (including Storm Drains)
f. Other Describe:

B. MONITORING FREQUENCY:

1. Reporting period that is the subject of this submittal:
From: 12/16/2013 To: 6/15/2014
(mm/dd/yyyy) (mm/dd/yyyy)

2. Number of monitoring events during the reporting period: (check one)

- a. System Startup: (if applicable)
i. Days 1, 3, 6, and then weekly thereafter, for the first month.
ii. Other Describe:
b. Post-system Startup (after first month) or Monitoring Program:
i. Monthly
ii. Quarterly
iii. Annually
iv. Other Describe: TOTAL VOCS, ~MONTHLY

3. Check here to certify that the number of required monitoring events were conducted during the reporting period.

C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge limits were established)

1. NPDES: (check one)
a. Remediation General Permit
b. Individual Permit
c. Emergency Exclusion
Effective Date of Permit: (mm/dd/yyyy)

2. MCP Performance Standard MCP Citations(s): WSC-94-150

3. DEP Approval Letter Date of Letter: (mm/dd/yyyy)

4. Other Describe:





D. WASTEWATER TREATMENT PLANT OPERATOR: (check one)

- 1. Required due to Remedial Wastewater Treatment Plant in place for more than 30 days.
a. Name: b. Grade:
c. License No: d. License Exp. Date: (mm/dd/yyyy)
2. Not Required
3. Not Applicable

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (check all that apply)

- 1. The Active Remedial System was functional one or more days during the Reporting Period.
a. Days System was Fully Functional: 182 b. GW Recovered (gals):
c. NAPL Recovered (gals): d. GW Discharged (gals):
e. Avg. Soil Gas Recovery Rate (scfm): 313.62 f. Avg. Sparging Rate (scfm):

2. Remedial Additives: (check all that apply)

- a. No Remedial Additives applied during the Reporting Period.
b. Enhanced Bioremediation Additives applied: (total quantity applied at the site for the current reporting period)

i. Nitrogen/Phosphorus:

Table with 4 columns: Name of Additive, Date, Quantity, Units

ii. Peroxides:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iii. Microorganisms:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iv. Other:

Table with 4 columns: Name of Additive, Date, Quantity, Units

c. Chemical oxidation/reduction additives applied: (total quantity applied at the site for the current reporting period)

i. Permanganates:

Table with 4 columns: Name of Additive, Date, Quantity, Units

ii. Peroxides:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iii. Persulfates:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iv. Other:

Table with 4 columns: Name of Additive, Date, Quantity, Units







**E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (cont.)**

d. Other additives applied: (total quantity applied at the site for the current reporting period)

Name of Additive	Date	Quantity	Units

Name of Additive	Date	Quantity	Units

e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

**F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)**

1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Unscheduled Shutdowns: \_\_\_\_\_ b. Total Number of Days of Unscheduled Shutdowns: \_\_\_\_\_  
 c. Reason(s) for Unscheduled Shutdowns: \_\_\_\_\_

2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns: 1 b. Total Number of Days of Scheduled Shutdowns: 0.1  
 c. Reason(s) for Scheduled Shutdowns: CARBON CHANGE ON 06/02/2014, APPROXIMATELY 3 HOURS

3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown: \_\_\_\_\_  
 (mm/dd/yyyy)

b. No Further Effluent Discharges.

c. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

d. No Further Submittals Planned.

e. Other: Describe: \_\_\_\_\_

**G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)**

1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.





CRA REMEDIAL MONITORING REPORT  
EFFLUENT/DISCHARGE CONCENTRATIONS

Release Tracking Number

Pursuant to 310 CMR 40.0800 (SUBPART H)

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Remedial System or Monitoring Program: 2 of 5

For each Point of Measurement, indicate the highest concentration detected during the reporting period, of each oil, hazardous material and/or remedial additive.

Point of Measurement	Date (mm/dd/yyyy)	Contaminant, Measurement and/or Indicator Parameter	Influent Concentration (where applicable)	Midpoint Concentration (where applicable)	(check one)		Permissible Concentration	Units	Within Permissible Limits? (Y/N)
					<input checked="" type="checkbox"/> Discharge	<input type="checkbox"/> GroundWater Concentration			
SVE	01/24/2014	TOTAL VOCS	3.9		<input checked="" type="checkbox"/> 0.1	<input type="checkbox"/>	0.195	PPMV	YES
SVE	02/04/2014	TOTAL VOCS	7.1			<input checked="" type="checkbox"/>	0.355	PPMV	YES
SVE	02/10/2014	TOTAL VOCS	9.2		<input checked="" type="checkbox"/> 0.1	<input type="checkbox"/>	0.460	PPMV	YES
SVE	04/07/2014	TOTAL VOCS	4.2			<input checked="" type="checkbox"/>	0.210	PPMV	YES
SVE	05/21/2014	TOTAL VOCS	7.5		<input checked="" type="checkbox"/> 0.2	<input type="checkbox"/>	0.375	PPMV	YES

Check here if any additional BWSC108 B, Effluent/Discharge Concentrations Form, is needed.







Bureau of Waste Site Cleanup

CRA REMEDIAL MONITORING REPORT

Pursuant to 310 CMR 40.0800 (SUBPART H)

Release Tracking Number

Remedial System or Monitoring Program: 3 of 5

3 - 23246

A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:

1. Type of Active Operation and Maintenance Activity: (check all that apply)

- a. Active Remedial System: (check all that apply)
i. NAPL Recovery
ii. Soil Vapor Extraction/Bioventing
iii. Vapor-phase Carbon Adsorption
iv. Groundwater Recovery
v. Dual/Multi-phase Extraction
vi. Aqueous-phase Carbon Adsorption
vii. Air Stripping
viii. Sparging/Biosparging
ix. Cat/Thermal Oxidation
x. Other Describe:

b. Active Exposure Pathway Elimination Measure
Active Exposure Pathway Mitigation System to address (check one): i. Indoor Air ii. Drinking Water

c. Application of Remedial Additives: (check all that apply)
i. To the Subsurface
ii. To Groundwater (Injection)
iii. To the Surface

d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (check all that apply; Sections C, D and E are not required; attach supporting information, data, maps and/or sketches needed by checking Section G5)

i. Reactive Wall
ii. Natural Attenuation
iii. Other Describe:

2. Mode of Operation: (check one)

a. Continuous
b. Intermittent
c. Pulsed
d. One-time Event Only
e. Other:

3. System Effluent/Discharge: (check all that apply)

- a. Sanitary Sewer/POTW
b. Groundwater Re-infiltration/Re-injection: (check one)
i. Downgradient
ii. Upgradient
c. Vapor-phase Discharge to Ambient Air: (check one)
i. Off-gas Controls
ii. No Off-gas Controls
d. Drinking Water Supply
e. Surface Water (including Storm Drains)
f. Other Describe:

B. MONITORING FREQUENCY:

1. Reporting period that is the subject of this submittal: From: 12/16/2013 To: 6/15/2014
(mm/dd/yyyy) (mm/dd/yyyy)

2. Number of monitoring events during the reporting period: (check one)

- a. System Startup: (if applicable)
i. Days 1, 3, 6, and then weekly thereafter, for the first month.
ii. Other Describe:
b. Post-system Startup (after first month) or Monitoring Program:
i. Monthly
ii. Quarterly
iii. Annually
iv. Other Describe: TOTAL VOCs, ~MONTHLY

3. Check here to certify that the number of required monitoring events were conducted during the reporting period.

C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge limits were established)

1. NPDES: (check one)
a. Remediation General Permit
b. Individual Permit
c. Emergency Exclusion
Effective Date of Permit: (mm/dd/yyyy)

2. MCP Performance Standard MCP Citations(s): WSC-94-150

3. DEP Approval Letter Date of Letter: (mm/dd/yyyy)

4. Other Describe:





D. WASTEWATER TREATMENT PLANT OPERATOR: (check one)

- 1. Required due to Remedial Wastewater Treatment Plant in place for more than 30 days.
a. Name: b. Grade:
c. License No: d. License Exp. Date: (mm/dd/yyyy)
2. Not Required
3. Not Applicable

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (check all that apply)

- 1. The Active Remedial System was functional one or more days during the Reporting Period.
a. Days System was Fully Functional: 182 b. GW Recovered (gals):
c. NAPL Recovered (gals): d. GW Discharged (gals):
e. Avg. Soil Gas Recovery Rate (scfm): 105.2 f. Avg. Sparging Rate (scfm):

2. Remedial Additives: (check all that apply)

- a. No Remedial Additives applied during the Reporting Period.
b. Enhanced Bioremediation Additives applied: (total quantity applied at the site for the current reporting period)

i. Nitrogen/Phosphorus:

Table with 4 columns: Name of Additive, Date, Quantity, Units

ii. Peroxides:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iii. Microorganisms:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iv. Other:

Table with 4 columns: Name of Additive, Date, Quantity, Units

c. Chemical oxidation/reduction additives applied: (total quantity applied at the site for the current reporting period)

i. Permanganates:

Table with 4 columns: Name of Additive, Date, Quantity, Units

ii. Peroxides:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iii. Persulfates:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iv. Other:

Table with 4 columns: Name of Additive, Date, Quantity, Units







E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (cont.)

d. Other additives applied: (total quantity applied at the site for the current reporting period)

Table with 4 columns: Name of Additive, Date, Quantity, Units

Table with 4 columns: Name of Additive, Date, Quantity, Units

e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)

1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Unscheduled Shutdowns: b. Total Number of Days of Unscheduled Shutdowns: c. Reason(s) for Unscheduled Shutdowns:

2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns: b. Total Number of Days of Scheduled Shutdowns: c. Reason(s) for Scheduled Shutdowns:

3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown: (mm/dd/yyyy)

b. No Further Effluent Discharges.

c. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

d. No Further Submittals Planned.

e. Other: Describe:

G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)

1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

Empty box for Operational Problems or Notes.

5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.





**CRA REMEDIAL MONITORING REPORT  
EFFLUENT/DISCHARGE CONCENTRATIONS**

Pursuant to 310 CMR 40.0800 (SUBPART H)

Release Tracking Number

Remedial System or Monitoring Program:  of

For each Point of Measurement, indicate the highest concentration detected during the reporting period, of each oil, hazardous material and/or remedial additive.

Point of Measurement	Date (mm/dd/yyyy)	Contaminant, Measurement and/or Indicator Parameter	Influent Concentration (where applicable)	Midpoint Concentration (where applicable)	(check one)		Permissible Concentration	Units	Within Permissible Limits? (Y/N)	
					<input checked="" type="checkbox"/> Discharge	<input type="checkbox"/> GroundWater Concentration				
SSDS	01/24/2014	TOTAL VOCS	1.1		<input checked="" type="checkbox"/>	1.2	<input type="checkbox"/>	8	PPMV	YES
SSDS	03/10/2014	TOTAL VOCS	0.2		<input checked="" type="checkbox"/>	0.2	<input type="checkbox"/>	8	PPMV	YES
SSDS	04/17/2014	TOTAL VOCS	0.1		<input checked="" type="checkbox"/>	0.1	<input type="checkbox"/>	8	PPMV	YES
SSDS	05/21/2014	TOTAL VOCS	1.5		<input checked="" type="checkbox"/>	1.1	<input type="checkbox"/>	8	PPMV	YES

Check here if any additional BWSC108 B, Effluent/Discharge Concentrations Form, is needed.







Bureau of Waste Site Cleanup

CRA REMEDIAL MONITORING REPORT

Pursuant to 310 CMR 40.0800 (SUBPART H)

Release Tracking Number

Remedial System or Monitoring Program: 4 of 5

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A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:

1. Type of Active Operation and Maintenance Activity: (check all that apply)

[ ] a. Active Remedial System: (check all that apply)

- [ ] i. NAPL Recovery [ ] ii. Soil Vapor Extraction/Bioventing [ ] iii. Vapor-phase Carbon Adsorption
[ ] iv. Groundwater Recovery [ ] v. Dual/Multi-phase Extraction [ ] vi. Aqueous-phase Carbon Adsorption
[ ] vii. Air Stripping [ ] viii. Sparging/Biosparging [ ] ix. Cat/Thermal Oxidation
[ ] x. Other Describe:

[x] b. Active Exposure Pathway Elimination Measure

Active Exposure Pathway Mitigation System to address (check one): [x] i. Indoor Air [ ] ii. Drinking Water

[ ] c. Application of Remedial Additives: (check all that apply)

- [ ] i. To the Subsurface [ ] ii. To Groundwater (Injection) [ ] iii. To the Surface

[ ] d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (check all that apply; Sections C, D and E are not required; attach supporting information, data, maps and/or sketches needed by checking Section G5)

- [ ] i. Reactive Wall [ ] ii. Natural Attenuation [ ] iii. Other Describe:

2. Mode of Operation: (check one)

- [x] a. Continuous [ ] b. Intermittent [ ] c. Pulsed [ ] d. One-time Event Only [ ] e. Other:

3. System Effluent/Discharge: (check all that apply)

- [ ] a. Sanitary Sewer/POTW
[ ] b. Groundwater Re-infiltration/Re-injection: (check one) [ ] i. Downgradient [ ] ii. Upgradient
[x] c. Vapor-phase Discharge to Ambient Air: (check one) [ ] i. Off-gas Controls [x] ii. No Off-gas Controls
[ ] d. Drinking Water Supply
[ ] e. Surface Water (including Storm Drains)
[ ] f. Other Describe:

B. MONITORING FREQUENCY:

1. Reporting period that is the subject of this submittal:

From: 12/16/2013 To: 6/15/2014
(mm/dd/yyyy) (mm/dd/yyyy)

2. Number of monitoring events during the reporting period: (check one)

- [ ] a. System Startup: (if applicable)
[ ] i. Days 1, 3, 6, and then weekly thereafter, for the first month.
[ ] ii. Other Describe:
[x] b. Post-system Startup (after first month) or Monitoring Program:
[ ] i. Monthly
[ ] ii. Quarterly
[x] iii. Annually
[ ] iv. Other Describe:

[x] 3. Check here to certify that the number of required monitoring events were conducted during the reporting period.

C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge limits were established)

- [ ] 1. NPDES: (check one) [ ] a. Remediation General Permit [ ] b. Individual Permit
[ ] c. Emergency Exclusion Effective Date of Permit: (mm/dd/yyyy)

[x] 2. MCP Performance Standard MCP Citations(s): WSC-94-150

[ ] 3. DEP Approval Letter Date of Letter: (mm/dd/yyyy)

[ ] 4. Other Describe:





D. WASTEWATER TREATMENT PLANT OPERATOR: (check one)

1. Required due to Remedial Wastewater Treatment Plant in place for more than 30 days.

a. Name: b. Grade:

c. License No: d. License Exp. Date: (mm/dd/yyyy)

2. Not Required

3. Not Applicable

E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING

REPORTING PERIOD: (check all that apply)

1. The Active Remedial System was functional one or more days during the Reporting Period.

a. Days System was Fully Functional: 182 b. GW Recovered (gals):
c. NAPL Recovered (gals): d. GW Discharged (gals):
e. Avg. Soil Gas Recovery Rate (scfm): 87 f. Avg. Sparging Rate (scfm):

2. Remedial Additives: (check all that apply)

a. No Remedial Additives applied during the Reporting Period.

b. Enhanced Bioremediation Additives applied: (total quantity applied at the site for the current reporting period)

i. Nitrogen/Phosphorus:

Table with 4 columns: Name of Additive, Date, Quantity, Units

ii. Peroxides:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iii. Microorganisms:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iv. Other:

Table with 4 columns: Name of Additive, Date, Quantity, Units

c. Chemical oxidation/reduction additives applied: (total quantity applied at the site for the current reporting period)

i. Permanganates:

Table with 4 columns: Name of Additive, Date, Quantity, Units

ii. Peroxides:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iii. Persulfates:

Table with 4 columns: Name of Additive, Date, Quantity, Units

iv. Other:

Table with 4 columns: Name of Additive, Date, Quantity, Units







**E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (cont.)**

d. Other additives applied: (total quantity applied at the site for the current reporting period)

Name of Additive	Date	Quantity	Units

Name of Additive	Date	Quantity	Units

e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

**F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)**

1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Unscheduled Shutdowns: 1      b. Total Number of Days of Unscheduled Shutdowns: 30  
 c. Reason(s) for Unscheduled Shutdowns: 103 WASHINGTON ST - TENANT TURNED OFF FAN

2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns: \_\_\_\_\_ b. Total Number of Days of Scheduled Shutdowns: \_\_\_\_\_  
 c. Reason(s) for Scheduled Shutdowns: \_\_\_\_\_

3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown: \_\_\_\_\_  
 (mm/dd/yyyy)

b. No Further Effluent Discharges.

c. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

d. No Further Submittals Planned.

e. Other: Describe: \_\_\_\_\_

**G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)**

1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.





A. DESCRIPTION OF ACTIVE OPERATION AND MAINTENANCE ACTIVITY:

1. Type of Active Operation and Maintenance Activity: (check all that apply)

a. Active Remedial System: (check all that apply)

- i. NAPL Recovery  ii. Soil Vapor Extraction/Bioventing  iii. Vapor-phase Carbon Adsorption
 iv. Groundwater Recovery  v. Dual/Multi-phase Extraction  vi. Aqueous-phase Carbon Adsorption
 vii. Air Stripping  viii. Sparging/Biosparging  ix. Cat/Thermal Oxidation
 x. Other Describe:

b. Active Exposure Pathway Elimination Measure

Active Exposure Pathway Mitigation System to address (check one):  i. Indoor Air  ii. Drinking Water

c. Application of Remedial Additives: (check all that apply)

- i. To the Subsurface  ii. To Groundwater (Injection)  iii. To the Surface

d. Active Remedial Monitoring Program Without the Application of Remedial Additives: (check all that apply; Sections C, D and E are not required; attach supporting information, data, maps and/or sketches needed by checking Section G5)

- i. Reactive Wall  ii. Natural Attenuation  iii. Other Describe:

2. Mode of Operation: (check one)

- a. Continuous  b. Intermittent  c. Pulsed  d. One-time Event Only  e. Other:

3. System Effluent/Discharge: (check all that apply)

- a. Sanitary Sewer/POTW
 b. Groundwater Re-infiltration/Re-injection: (check one)  i. Downgradient  ii. Upgradient
 c. Vapor-phase Discharge to Ambient Air: (check one)  i. Off-gas Controls  ii. No Off-gas Controls
 d. Drinking Water Supply
 e. Surface Water (including Storm Drains)
 f. Other Describe:

B. MONITORING FREQUENCY:

1. Reporting period that is the subject of this submittal:

From: 12/16/2013 To: 6/15/2014
(mm/dd/yyyy) (mm/dd/yyyy)

2. Number of monitoring events during the reporting period: (check one)

- a. System Startup: (if applicable)
 i. Days 1, 3, 6, and then weekly thereafter, for the first month.
 ii. Other Describe:
 b. Post-system Startup (after first month) or Monitoring Program:
 i. Monthly
 ii. Quarterly
 iii. Annually
 iv. Other Describe:

3. Check here to certify that the number of required monitoring events were conducted during the reporting period.

C. EFFLUENT/DISCHARGE REGULATION: (check one to indicate how the effluent/discharge limits were established)

- 1. NPDES: (check one)  a. Remediation General Permit  b. Individual Permit
 c. Emergency Exclusion Effective Date of Permit: (mm/dd/yyyy)

2. MCP Performance Standard MCP Citations(s):

3. DEP Approval Letter Date of Letter: (mm/dd/yyyy)

4. Other Describe:







**Massachusetts Department of Environmental Protection**  
*Bureau of Waste Site Cleanup*  
**CRA REMEDIAL MONITORING REPORT**

BWSC108 -A

Pursuant to 310 CMR 40.0800 (SUBPART H)

Release Tracking Number

Remedial System or Monitoring Program:  of

-

**D. WASTEWATER TREATMENT PLANT OPERATOR:** (check one)

1. Required due to Remedial Wastewater Treatment Plant in place for more than 30 days.  
 a. Name: \_\_\_\_\_ b. Grade: \_\_\_\_\_  
 c. License No: \_\_\_\_\_ d. License Exp. Date: \_\_\_\_\_  
 (mm/dd/yyyy)
2. Not Required
3. Not Applicable

**E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD:** (check all that apply)

1. The Active Remedial System was functional one or more days during the Reporting Period.  
 a. Days System was Fully Functional: \_\_\_\_\_ b. GW Recovered (gals): \_\_\_\_\_  
 c. NAPL Recovered (gals): \_\_\_\_\_ d. GW Discharged (gals): \_\_\_\_\_  
 e. Avg. Soil Gas Recovery Rate (scfm): \_\_\_\_\_ f. Avg. Sparging Rate (scfm): \_\_\_\_\_

2. Remedial Additives: (check all that apply)

- a. No Remedial Additives applied during the Reporting Period.
- b. Enhanced Bioremediation Additives applied: (total quantity applied at the site for the current reporting period)

i. Nitrogen/Phosphorus:

Name of Additive	Date	Quantity	Units

ii. Peroxides:

Name of Additive	Date	Quantity	Units

iii. Microorganisms:

Name of Additive	Date	Quantity	Units

iv. Other:

Name of Additive	Date	Quantity	Units

c. Chemical oxidation/reduction additives applied: (total quantity applied at the site for the current reporting period)

i. Permanganates:

Name of Additive	Date	Quantity	Units

ii. Peroxides:

Name of Additive	Date	Quantity	Units

iii. Persulfates:

Name of Additive	Date	Quantity	Units

iv. Other:

Name of Additive	Date	Quantity	Units





E. STATUS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM DURING REPORTING PERIOD: (cont.)

d. Other additives applied: (total quantity applied at the site for the current reporting period)

Table with 4 columns: Name of Additive, Date, Quantity, Units

Table with 4 columns: Name of Additive, Date, Quantity, Units

e. Check here if any additional Remedial Additives were applied. Attach list of additional additives and include Name of Additive, Date Applied, Quantity Applied and Units (in gals. or lbs.)

F. SHUTDOWNS OF ACTIVE REMEDIAL SYSTEM OR ACTIVE REMEDIAL MONITORING PROGRAM: (check all that apply)

1. The Active Remedial System had unscheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Unscheduled Shutdowns: b. Total Number of Days of Unscheduled Shutdowns: c. Reason(s) for Unscheduled Shutdowns:

2. The Active Remedial System had scheduled shutdowns on one or more occasions during the Reporting Period.

a. Number of Scheduled Shutdowns: b. Total Number of Days of Scheduled Shutdowns: c. Reason(s) for Scheduled Shutdowns:

3. The Active Remedial System or Active Remedial Monitoring Program was permanently shutdown/discontinued during the Reporting Period.

a. Date of Final System or Monitoring Program Shutdown: (mm/dd/yyyy)

b. No Further Effluent Discharges.

c. No Further Application of Remedial Additives planned; sufficient monitoring completed to demonstrate compliance with 310 CMR 40.0046.

d. No Further Submittals Planned.

e. Other: Describe:

G. SUMMARY STATEMENTS: (check all that apply for the current reporting period)

1. All Active Remedial System checks and effluent analyses required by the approved plan and/or permit were performed when applicable.

2. There were no significant problems or prolonged (>25% of reporting period) unscheduled shutdowns of the Active Remedial System.

3. The Active Remedial System or Active Remedial Monitoring Program operated in conformance with the MCP, and all applicable approval conditions and/or permits.

4. Indicate any Operational Problems or Notes:

Empty box for Operational Problems or Notes

5. Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.





**Additional supporting information for:**

**CRA REMEDIAL MONITORING REPORT**

Pursuant to 310 CMR 40.0800 (Subpart H)

**BWSC-108A**, Remedial System 5 of 5, Section G, Question 5: **SUMMARY**

**STATEMENTS:** Check here if additional/supporting Information, data, maps, and/or sketches are attached to the form.

The Summary Statement for BWSC-108A Remedial System 5 of 5 has been submitted via eDEP, Transmittal No. **668619** as part of the "Phase V Status Report No. 6 and Remedial Monitoring Report No. 21," RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated August 1, 2014.



Transaction Overview Trans# 668619 ID# 3-23246 BWSC108 Comp. Res. Action Transmittal Form & Phase I



Summary & Receipt

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DEP Transaction ID: 668619  
Date and Time Submitted: 8/1/2014 1:15:35 PM  
Other Email :

Form Name: BWSC108 Comp. Res. Action Transmittal Form & Phase I

RTN: 3-23246  
Location: 50 TUFTS ST & PROP ACROSS THE ST  
Address: 50 TUFTS ST, SOMERVILLE, 021454129

Person Making Submittal  
UNIFIRST CORPORATION  
TIMOTHY COSGRAVE  
68 JONSPIN RD  
WILMINGTON, MA 018871090

LSP  
LSP #: 9719  
LSP Name: ILEEN S GLADSTONE

Person Making Certification  
UNIFIRST CORPORATION  
Timothy Cosgrave

Additional Forms Submitted

- ✓ BWSCRMRA Remedial Monitoring Report( )
- ✓ BWSCRMRA Remedial Monitoring Report( )
- ✓ BWSCRMRA Remedial Monitoring Report( )
- ✓ BWSCRMRA Remedial Monitoring Report( )
- ✓ BWSCRMRA Remedial Monitoring Report( )
- ✓ BWSCRMRB Remedial Monitoring Report( )
- ✓ BWSCRMRB Remedial Monitoring Report( )
- ✓ BWSCRMRB Remedial Monitoring Report( )

Ancillary Document Uploaded/Mailed

- BWSC-108 Ques.B15 - Phase V Status Report - Uploaded (Phase V SR 6 RMR 21.pdf)
- BWSC-108 Ques.B18 - ROS Status Report - Uploaded (Attachment to BWSC-108.pdf)



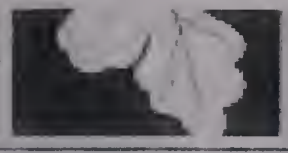


RMR-A G5 Additional Supporting Information - Uploaded (Attachment to BWSC-108A.pdf)

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**TIER CLASSIFICATION TRANSMITTAL FORM**

Pursuant to 310 CMR 40.0500 (Subpart E)

3 - 23246

**A. DISPOSAL SITE LOCATION:**

1. Disposal Site Name: 50 TUFTS ST & PROP ACROSS THE ST

2. Street Address: 50 TUFTS ST

3. City/Town: SOMERVILLE 4. ZIP Code: 021454129

5. Coordinates: Latitude: N 42.38246 Longitude: W 71.08900

**B. THIS FORM IS BEING USED TO:** (check all that apply)

- 1. Submit a new **Tier Classification Submittal**, including a **Tier Classification Compliance History** (BWSC107B). Check the tier classification category:
  - a. Tier I       b. Tier II
  - c. Check all Tier I criteria that apply, pursuant to 310 CMR 40.0520(2):
    - i. Groundwater is located within an Interim Wellhead Protection Area, Zone II, or within 500 feet of a Private Water Supply Well, and there is evidence of groundwater contamination by an Oil or Hazardous Material at the time of Tier Classification at concentrations equal to or exceeding the applicable RCGW-1 Reportable Concentration set forth in 310 CMR 40.0360.
    - ii. An Imminent Hazard is present at the time of Tier Classification.
    - iii. One or more remedial actions are required as part of an Immediate Response Action pursuant to 310 CMR 40.0414(2).
    - iv. One or more response actions are required as part of an Immediate Response Action to eliminate or mitigate a Critical Exposure Pathway pursuant to 310 CMR 40.0414(3).
  - d. Check here if including an **Eligible Person, Eligible Tenant, or Other Person Certification** (BWSC107D)
- 2. Submit a **Phase I Completion Statement** as per 310 CMR 40.0480.  
If previously submitted, provide date \_\_\_\_\_  
mm/dd/yyyy
- 3. Submit a **Phase II Scope of Work** as per 310 CMR 40.0834.  
If previously submitted, provide date \_\_\_\_\_  
mm/dd/yyyy
- 4. Submit a **Phase II Conceptual Scope of Work supporting a Tier Classification Submittal**.
- 5. Submit a **Tier Classification Extension Submittal** for Response Actions at a Tier Classified Site including the **Tier Classification Compliance History** (BWSC107B).
- 6. Submit a **Tier Classification Transfer Submittal** for a change in person(s) undertaking Response Actions at a Tier Classified Site including the **Tier Classification Compliance History** (BWSC107B) and the **Tier Classification Transferor Certification** (BWSC107C).

Proposed effective date of transfer : \_\_\_\_\_  
mm/dd/yyyy







**TIER CLASSIFICATION TRANSMITTAL FORM**

Pursuant to 310 CMR 40.0500 (Subpart E)

Release Tracking Number

3 - 23246

**B. THIS FORM IS BEING USED TO: (cont.)**

7. Submit a **Revised Tier Classification Submittal**.

Check the revised Tier Classification Category. If the Tier Classification Category is not changing, indicate the current classification.

- a. Tier I
- b. Tier II

c. Check all Tier I criteria that apply, pursuant to 310 CMR 40.0520(2):

- i. Groundwater is located within an Interim Wellhead Protection Area, Zone II, or within 500 feet of a Private Water Supply Well, and there is evidence of groundwater contamination by an Oil or Hazardous Material at the time of Tier Classification at concentrations equal to or exceeding the applicable RCGW-1 Reportable Concentration set forth in 310 CMR 40.0360.
- ii. An Imminent Hazard is present at the time of Tier Classification.
- iii. One or more remedial actions are required as part of an Immediate Response Action pursuant to 310 CMR 40.0414(2).
- iv. One or more response actions are required as part of an Immediate Response Action to eliminate or mitigate a Critical Exposure Pathway pursuant to 310 CMR 40.0414(3).

d. Check here if including an **Eligible Person, Eligible Tenant, or Other Person Certification (BWSC107D)**

8. Provide a **Notice that an additional Release Tracking Number(s) is (are) being linked to this Tier Classified Site (Primary RTN)**.

Future response actions addressing the Release or Threat of Release notification condition associated with additional Release Tracking Numbers (RTNs) will be conducted as part of the Response Actions planned or ongoing at the Primary Site listed above. For a previously Tier Classified Primary Site, if there is a reasonable likelihood that the addition of the new secondary RTN(s) would change the classification of the site, a **Revised Tier Classification Submittal** must also be made.

Provide Release Tracking Number(s):

a.  -       b.  -

All future Response Actions must occur according to the deadlines applicable to the Primary RTN. Use only the Primary RTN when making future submittals for this site unless specifically relating to response actions started before the linking occurred.

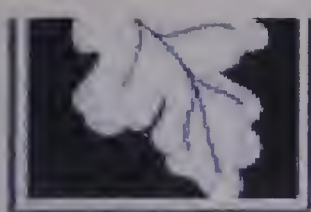












**TIER CLASSIFICATION TRANSMITTAL FORM**

Pursuant to 310 CMR 40.0500 (Subpart E)

Release Tracking Number

3 - 23246

**D. PERSON MAKING SUBMITTAL:**

1. Check all that apply:  a. change in contact name  b. change of address  c. change in the person undertaking response actions

2. Name of Organization: UNIFIRST CORPORATION

3. Contact First Name: TIMOTHY 4. Last Name: COSGRAVE

5. Street: 68 JONSPIN RD 6. Title: SENIOR MGR EH&S

7. City/Town: WILMINGTON 8. State: MA 9. ZIP Code: 018871090

10. Telephone: 978-658-8888 11. Ext.: 4332 12. Email: \_\_\_\_\_

**E. RELATIONSHIP OF PERSON MAKING SUBMITTAL TO DISPOSAL SITE:**  Check here to change relationship

1. RP or PRP  a. Owner  b. Operator  c. Generator  d. Transporter  
 e. Other RP or PRP Specify: OTHER PRPS

2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

4. Any Other Person Making Submittal Specify Relationship: \_\_\_\_\_

**F. REQUIRED ATTACHMENT AND SUBMITTALS:**

1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of any Phase Reports to DEP.

3. Check here to certify that a copy of the Legal Notice of a Tier Classification or Re-classification Submittal is attached, and a cover letter and a copy of the notice is sent to the Chief Municipal Officer and the Local Board of Health pursuant to 310 CMR 40.0510(3) and 40.1403.

4. Check here to certify that the owner of a Public Water Supply has been provided written notice pursuant to 310 CMR 40.0510(3).

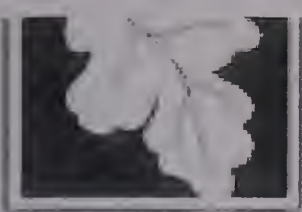
5. For a Tier Classification Extension Submittal, check here to certify that a statement summarizing why a Permanent or Temporary Solution has not been achieved at the Disposal Site is attached.

6. For a Tier Classification Transfer Submittal, check here to certify that a statement summarizing the reasons for the proposed change in person(s) undertaking the Response Actions is attached. All Response Actions must be completed by the deadline applicable to the person who first filed a Tier Classification Submittal for the Disposal Site.

7. Check here if any non-updatable information provided on this form is incorrect, e.g., Release Address/Location Aid. Send corrections to [bwsc.edep@state.ma.us](mailto:bwsc.edep@state.ma.us).

8. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.





**TIER CLASSIFICATION TRANSMITTAL FORM**

Pursuant to 310 CMR 40.0500 (Subpart E)

3 - 23246

**G. CERTIFICATION OF PERSON MAKING SUBMITTAL:**

I, TIMOTHY COSGRAVE, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

If submitting a Tier II Classification, Extension or Transfer, I also attest under the pains and penalties of perjury that (i) I/the person(s) or entity(ies) on whose behalf this submittal is made has/have personally examined and am/is familiar with the requirements of M.G.L. c. 21E and 310 CMR 40.0000; (ii) based upon my inquiry of the/those Licensed Site Professional(s) employed or engaged to render Professional Services for the disposal site which is the subject of this Transmittal Form and of the person(s) or entity(ies) on whose behalf this submittal is made, and my/that person's(s') or entity's(ies') understanding as to the estimated costs of necessary response actions, that/those person(s) or entity(ies) has/have the technical, financial and legal ability to proceed with response actions for such site in accordance with M.G.L. c. 21E, 310 CMR 40.0000 and other applicable requirements; and (iii) that I am fully authorized to make this attestation on behalf of the person(s) or entity(ies) legally responsible for this submittal. I/the person(s) or entity(ies) on whose behalf this submittal is made is aware of the requirements in 310 CMR 40.0172 for notifying the Department in the event that I/the person(s) or entity(ies) on whose behalf this submittal is made learn(s) that it/they is/are unable to proceed with the necessary response actions.

2. By: TIMOTHY COSGRAVE 3. Title: SENIOR MGR EH&S  
Signature

4. For: UNIFIRST CORPORATION 5. Date: 8/1/2014  
(Name of person or entity recorded in Section D) mm/dd/yyyy

6. Check here if the address of the person providing certification is different from address recorded in Section D.

7. Street: \_\_\_\_\_

8. City/Town: \_\_\_\_\_ 9. State: \_\_\_\_\_ 10. ZIP Code: \_\_\_\_\_

11. Telephone: \_\_\_\_\_ 12. Ext.: \_\_\_\_\_ 13. Email: \_\_\_\_\_

**YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.**

Date Stamp (DEP USE ONLY):

Received by DEP on 8/1/2014 1:23:16 PM







August 1, 2014  
Project 04516-3

Geotechnical  
Environmental  
Water Resources  
Engineering

Joseph A. Curtatone  
Mayor, City of Somerville  
Somerville City Hall  
93 Highland Avenue  
Somerville, MA 02143-1740

Dear Mayor Curtatone:

**Re: Tier II Classification Submittal  
50 Tufts Street  
Somerville, Massachusetts  
MassDEP RTN 3-23246**

GEI Consultants, Inc., on behalf of UniFirst Corporation, is hereby notifying your office that the Site associated with the Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number (RTN) 3-23246 has been re-classified as a Tier II disposal site. A Tier II Classification submittal has been prepared and will be submitted to the MassDEP Northeast Regional Office in Wilmington, Massachusetts on August 1, 2014. A copy of the Site plan from the Phase V Status Report No. 6 and Remedial Monitoring Report (RMR) No. 21, which includes the basis for the Tier reclassification, is enclosed.

The Massachusetts Contingency Plan (MCP) requires that a public notice in the form of a legal notice be placed in the local newspaper notifying the public that a Revised Tier Classification will be submitted to the MassDEP. The text of the legal notice, which will be published in *The Somerville Journal* on August 7, 2014, is enclosed. The Phase II Comprehensive Site Assessment (CSA), Method 3 Risk Characterization, and Phase III Remedial Action Plan (RAP) (Phase II/ Phase III), dated July 14, 2008 and the Phase V Status Report No. 6 and RMR No. 21, and supporting documentation are on file with the MassDEP Northeast Regional Office in Wilmington, Massachusetts.

This notification is made in fulfillment of the public notice requirements of the MCP (310 CMR 40.1403). Please call me at 781-721-4012, if you have any questions.

Sincerely,

GEI CONSULTANTS, INC.

A handwritten signature in blue ink, appearing to read "Heen S. Gladstone", written over a horizontal line.

Heen S. Gladstone, P.E., LSP, LEEP AP  
Senior Principal

CMM/JDR/ISG:csh  
Enclosure

c: Timothy Cosgrave, UniFirst Corporation  
Vithal V. Deshpande, City of Somerville  
MassDEP (as part of Status Report)





August 1, 2014  
Project 04516-3

Geotechnical  
Environmental  
Water Resources  
Engineering

Ms. Paulette Renault-Caragianes  
Director, Health Department City of Somerville  
City Hall Annex  
50 Evergreen Avenue  
Somerville, MA 02145-2819

Dear Ms. Renault-Caragianes:

**Re: Tier II Classification Submittal  
50 Tufts Street  
Somerville, Massachusetts  
MassDEP RTN 3-23246**

GEI Consultants, Inc., on behalf of UniFirst Corporation, is hereby notifying your office that the Site associated with the Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number (RTN) 3-23246 has been re-classified as a Tier II disposal site. A Tier II Classification submittal has been prepared and will be submitted to the MassDEP Northeast Regional Office in Wilmington, Massachusetts on August 1, 2014. A copy of the Site plan from the Phase V Status Report No. 6 and Remedial Monitoring Report (RMR) No. 21, which includes the basis for the Tier reclassification, is enclosed.

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Sincerely,

GEI CONSULTANTS, INC.

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ileen S. Gladstone, P.E., LSP, LEEP AP  
Senior Principal

CMM/JDR/ISG:csh  
Enclosure

c: Timothy Cosgrave, UniFirst Corporation  
Vithal V. Deshpande, City of Somerville  
MassDEP (as part of Status Report)





## **NOTICE OF TIER CLASSIFICATION**

**Site Name: 50 Tufts Street**

**Site Address: 50 Tufts Street, Somerville, Massachusetts**

**MassDEP Release Tracking Number (RTN): 3-23246**

A release of oil and/or hazardous materials has occurred at this location, which is a disposal site as defined by M.G.L. c. 21E, § 2 and the Massachusetts Contingency Plan, 310 CMR 40.0000. The site has been reclassified as Tier II pursuant to 310 CMR 40.0500. On August 1, 2014, UniFirst Corporation filed a Tier II Classification Submittal with the Massachusetts Department of Environmental Protection (MassDEP). To obtain more information on this disposal site, please contact Ileen S. Gladstone at GEI Consultants, Inc., 400 Unicorn Park Drive, Woburn, Massachusetts 01801, 781-721-4012. The Tier Classification Submittal and the disposal site file can be reviewed at MassDEP website using release Tracking Number (RTN) 3-23246 at <http://public.dep.state.ma.us/SearchableSites2/Search.aspx> or at the Northeast Regional Office, 205B Lowell Street, Wilmington, Massachusetts 01887, 978-694-3200.



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DEP Transaction ID: 668561  
Date and Time Submitted: 8/1/2014 1:23:16 PM  
Other Email :

**Form Name:** BWSC107 Tier Classification Transmittal Form

RTN: 3-23246  
Location: 50 TUFTS ST & PROP ACROSS THE ST  
Address: 50 TUFTS ST, SOMERVILLE, 021454129

Person Making Submittal  
UNIFIRST CORPORATION  
TIMOTHY COSGRAVE  
68 JONSPIN RD  
WILMINGTON, MA 018871090

LSP  
LSP #: 9719  
LSP Name: ILEEN S GLADSTONE

### Person Making Certification

Timothy Cosgrave

### Additional Forms Submitted

#### Ancillary Document Uploaded/Mailed

BWSC107 Q.F3 - Legal Notice of a Tier Classification - Uploaded (Site Tier Reclassification Legal Notice.pdf)  
BWSC107 Sec B Q.7 - Revised Tier Classification Submittal - Uploaded (Phase V SR 6 RMR 21.pdf)

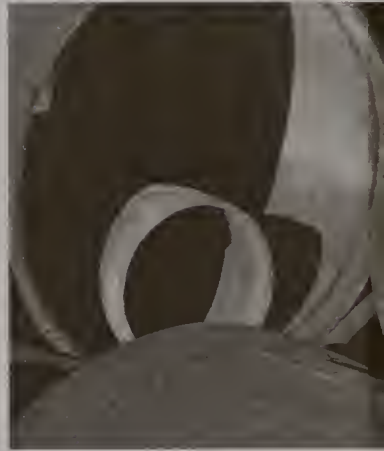
[My eDEP](#)







Geotechnical  
Environmental  
Water Resources  
Ecological





MassDEP RTN 3-23246  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
50 Tufts Street, Somerville, Massachusetts  
UniFirst Corporation  
August 1, 2014

## **Appendix B**

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### **Property Owner Notification Letters**

**(See enclosed CD behind Appendix B tab)**





Phase V SR #6 & RMR #21  
Appendices B & D  
50 Tufts Street Site  
Somerville, MA  
Project No. 04516-3

Prepared by:



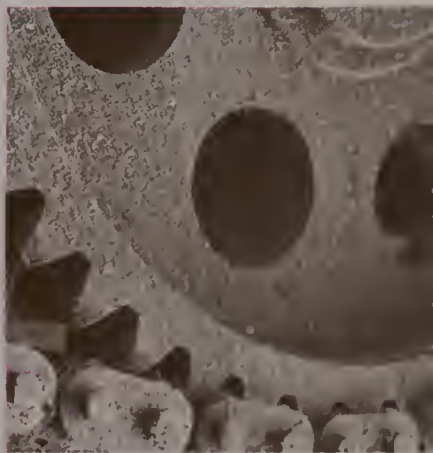
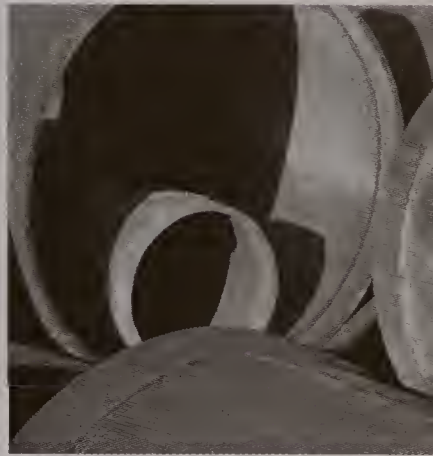
UniFirst Corporation  
68 Jonspin Road  
Wilmington, MA 01887

August 1, 2014





Geotechnical  
Environmental and  
Water Resources  
Engineering







## Appendix C

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### Kleinfelder Boring and Monitoring Well Installation Logs



Boring Number: KE-114	Location: Washington Street Bridge	Drilling Method: Mud Rotary
Boring Total Depth: 30.0 ft	Coordinates (X/Y, Lat/Long): 2963883.76 ft / 767576.54 ft	Drilling Equipment: CME 750
Depth to Cored Rock: No Rock Cored	Datum/Coordinate System: NAD83_MA_StatePlane 2001 Ft	Drilling Company: Geologic
Date Begin/End: 09-12-12 / 09-12-12	Top of Boring Elevation: 27.7 ft	Bit Size/Type: 4.25
Surface Conditions: Grass	Coordinate Data Source: GPS	Hammer Type/Method: automatic
WL Measurement Point: Ground Surface	Depth to Water at Time of Drilling:	Hammer Drop/Weight: 30 in. / 140 lbs.
Logged By: M. Zirolli	Depth to Groundwater Date/Time: 21.25' on 9/27/12	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Blows per 6 in.	Recovery Length (in.)	Pocket Pen. (tsf)	Graphic Log	USCS Symbol	Field Soil Description & Classification	Laboratory					Other Tests and Field Notes	Well Construction	
									Description	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)			Passing #200 Sieve (%)
5-22.7			S-1	7	20			SW-SM	(FILL) Well Graded SAND with Silt and Gravel (SW-SM), light brown with black layers, moist, dense, with coal and ash.							PID = 0.8	
			S-2	14	18			SW-SM	(FILL) Well Graded SAND with Silt and Gravel (SW-SM), light brown with black layers, moist, dense, with coal and ash.							PID = 0.0	
			S-3	21	5			SW	(FILL) Well Graded SAND with Gravel (SW), light brown, wet, medium dense.							PID = 0.0	
			S-4	29	0				No Recovery							PID = 0.0	
			S-5	19	10			CL	Sandy Lean CLAY (CL), dark brown, moist, stiff.							PID = 0.0	
			S-6	18	9			SC	Clayey SAND (SC), dark brown, moist, medium dense.							PID = 0.0	2.5 ft of bentonite
			S-7	16	12			SC	Clayey SAND with Gravel (SC), dark brown, moist, dense.							PID = 0.0	2.5 ft of #2 sand
			S-8	20	9			SM	Silty SAND (SM), dark brown, dry, medium dense.							PID = 0.0	
			S-9	9	22			SW-SC	Well Graded SAND with Clay and Gravel (SW-SC), reddish brown and gray, moist, very dense.							PID = 0.0	
			S-10	3	14			GC	Clayey GRAVEL (GC), brown, wet, very dense. (TILL)							PID = 0.0	
			S-11	7	11			GC	Clayey GRAVEL (GC), brown, wet, very dense. (TILL)							PID = 0.0	
				4				GM								PID = 0.0	

EXTON COMBINED LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD LIBRARY R4 EXTON.GLB SOUTH OF WASHINGTON BORINGS.GPJ 12/13/12



Project Number: 2012096  
 Entry By: MJZ  
 Checked By: BJS  
 Date Checked: 12-13-12  
 Page: 1 of 2

**LOG KE-114**

South of Washington Borings





Boring Number: KE-114	Location: Washington Street Bridge	Drilling Method: Mud Rotary
Boring Total Depth: 30.0 ft	Coordinates (X/Y, Lat/Long): 2963883.76 ft / 767576.54 ft	Drilling Equipment: CME 750
Depth to Cored Rock: No Rock Cored	Datum/Coordinate System: NAD83_MA_StatePlane 2001 Ft	Drilling Company: Geologic
Date Begin/End: 09-12-12 / 09-12-12	Top of Boring Elevation: 27.7 ft	Bit Size/Type: 4.25
Surface Conditions: Grass	Coordinate Data Source: GPS	Hammer Type/Method: automatic
WL Measurement Point: Ground Surface	Depth to Water at Time of Drilling:	Hammer Drop/Weight: 30 in. / 140 lbs.
Logged By: M. Zirilli	Depth to Groundwater Date/Time: 21.25' on 9/27/12	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Blows per 6 in.	Recovery Length (in.)	Pocket Pen. (tsf)	Graphic Log	USCS Symbol	Field Soil Description & Classification	Laboratory					Other Tests and Field Notes	Well Construction	
									Description	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)			Passing #200 Sieve (%)
25	2.7		S-12	62 66					Silty GRAVEL (GM), gray, wet, very dense. (Weathered Bedrock) (layer continued from previous page)							15.0 ft of 10 slot screen with #2 sand	
			S-13	100/4" 100/3"	2			GM	Silty GRAVEL (GM), gray, wet, very dense. Refusal at 24.25'. Drilled out to 30' to set well.							PID = 0.0	
30	-2.3								Completed at a depth of 30.0 ft below existing site grade.								
35	-7.3																
40	-12.3																

EXTON COMBINED LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD LIBRARY R4\_EXTON.GLB SOUTH OF WASHINGTON BORINGS.GPJ 12/13/12



Project Number: 2012096  
 Entry By: MJZ  
 Checked By: BJS  
 Date Checked: 12-13-12  
 Page: 2 of 2

**LOG KE-114**

South of Washington Borings



EXTON COMBINED LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD LIBRARY R4 EXTON.GLB SOUTH OF WASHINGTON BORINGS.GPJ 12/13/12

Boring Number: KE-115	Location: Washington Street Bridge	Drilling Method: Mud Rotary
Boring Total Depth: 30.0 ft	Coordinates (XY, Lat/Long): 2963952.8 ft / 767529.38 ft	Drilling Equipment: CME 750
Depth to Cored Rock: No Rock Cored	Datum/Coordinate System: NAD83_MA_StatePlane 2001 Ft	Drilling Company: Geologic
Date Begin/End: 09-11-12 / 09-11-12	Top of Boring Elevation: 28.2 ft	Bit Size/Type: 4.25
Surface Conditions: Grass	Coordinate Data Source: GPS	Hammer Type/Method: automatic
WL Measurement Point: Ground Surface	Depth to Water at Time of Drilling: 21.15'	Hammer Drop/Weight: 30 in. / 140 lbs.
Logged By: M. Zirilli	Depth to Groundwater Date/Time: 21.21' on 9/27/12	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Blows per 6 in.	Recovery Length (in.)	Pocket Pen. (tsf)	Graphic Log	USCS Symbol	Field Soil Description & Classification	Laboratory					Other Tests and Field Notes	Well Construction	
									Description	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)			Passing #200 Sieve (%)
5	23.2		S-1	4	17			SW-SM	(FILL) Well Graded SAND with Silt and Gravel (SW-SM), black, moist, medium dense, with coal and ash.							PID = 0.0	
			S-2	5	14			SW-SM	(FILL) Well Graded SAND with Silt and Gravel (SW-SM), black to light brown, moist, medium dense, with coal.							PID = 0.0	
			S-3	7	15			SW-SM	(FILL) Well Graded SAND with Silt and Gravel (SW-SM), black to light brown, moist, medium dense, with coal.							PID = 0.0	10.0 ft of native fill
			S-4	13	16			SP-SM	(FILL) Poorly Graded SAND with Silt and Gravel (SP-SM), light brown, moist, dense, trace coal.							PID = 0.0	
			S-5	14	15			SC	(FILL) Clayey SAND with Gravel (SC), light brown, moist, dense.							PID = 0.0	
10	18.2		S-6	11	10			SC	(FILL) Clayey SAND with Gravel (SC), light brown, moist, medium dense.							PID = 0.0	2.5 ft of bentonite
			S-7	12	5			GC	(FILL) Clayey GRAVEL with Sand (GC), light brown, wet, medium dense.							PID = 0.0	2.5 ft of #2 sand
15	13.2		S-8	7	9			CL	Sandy Lean CLAY (CL), dark brown, wet, stiff.							PID = 0.0	
			S-9	11	8			GC	Clayey GRAVEL with Sand (GC), dark brown, wet, medium dense.							PID = 0.0	
			S-10	14	14			SC	Clayey SAND with Gravel (SC), reddish brown and dark brown, wet, dense.							PID = 0.0	
20	8.2		S-11	30	12			SC	Clayey SAND with Gravel (SC), reddish brown with gray clay, wet, very dense. (Till)							PID = 0.0	
				31	15			SC								PID = 0.0	



Project Number: 2012096  
 Entry By: MJZ  
 Checked By: BJS  
 Date Checked: 12-13-12  
 Page: 1 of 2

**LOG KE-115**

South of Washington Borings









Boring Number: KE-116	Location: Washington Street Bridge	Drilling Method: Mud Rotary
Boring Total Depth: 32.0 ft	Coordinates (X/Y, Lat/Long): 2964026.03 ft / 767475.31 ft	Drilling Equipment: CME 750
Depth to Cored Rock: No Rock Cored	Datum/Coordinate System: NAD83_MA_StatePlane 2001 Ft	Drilling Company: Geologic
Date Begin/End: 09-10-12 / 09-10-12	Top of Boring Elevation: 28.3 ft	Bit Size/Type: 4.25
Surface Conditions: Grass	Coordinate Data Source: GPS	Hammer Type/Method: automatic
WL Measurement Point: Ground Surface	Depth to Water at Time of Drilling: 23'	Hammer Drop/Weight: 30 in. / 140 lbs.
Logged By: M. Zirolli	Depth to Groundwater Date/Time: 21.26' on 9/27/12	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Blows per 6 in.	Recovery Length (in.)	Pocket Pen. (tsf)	Graphic Log	USCS Symbol	Field Soil Description & Classification	Laboratory					Other Tests and Field Notes	Well Construction	
									Description	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)			Passing #200 Sieve (%)
			S-1	2	12			SP	(FILL) Poorly Graded Fine SAND with Gravel (SP), light tan, moist, medium dense.							PID = 0.0	
			S-2	4	13			SP	(FILL) Poorly Graded Fine SAND with Gravel (SP), light tan, moist, loose.							PID = 0.0	
			S-3	2	11			SW	(FILL) Well Graded SAND with Gravel (SW), black, wet, loose, with frequent coal, ash and cinders.							PID = 0.0	10.0 ft of native fill
	23.3		S-4	3	12			SW	(FILL) Well Graded SAND with Gravel (SW), light brown, moist, medium dense.							PID = 0.0	
			S-5	2	7			SW	(FILL) Well Graded SAND with Gravel (SW), light brown, wet, medium dense.							PID = 0.0	
			S-6	3	6			SW	(FILL) Well Graded SAND with Gravel (SW), light brown, wet, loose.							PID = 0.0	2.5 ft of bentonite
			S-7	10	8			SW	(FILL) Well Graded SAND with Gravel (SW), light brown, wet, medium dense.							PID = 0.0	2.5 ft of #2 sand
			S-8	8	4			SW	(FILL) Well Graded SAND with Gravel (SW), light brown, wet, medium dense.							PID = 0.0	
	13.3		S-9	4	8			SP	Poorly Graded Fine SAND (SP), light brown, moist, medium dense.							PID = 0.0	
			S-10	9	16			SP	Same as above grading to Poorly Graded Medium SAND (SP), reddish brown, moist, dense.							PID = 0.0	
			S-11	10	15			SW-SM	Well Graded SAND with Silt and Gravel (SW-SM), brown, red and gray, wet, very dense.							PID = 0.0	
	8.3			16	14			SW-SM								PID = 0.0	

EXTON COMBINED LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD LIBRARY R4 EXTON.GLB SOUTH OF WASHINGTON BORINGS.GPJ 12/13/12



Project Number: 2012096  
 Entry By: MJZ  
 Checked By: BJS  
 Date Checked: 12-13-12  
 Page: 1 of 2

**LOG KE-116**

South of Washington Borings









EXTON COMBINED LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD LIBRARY R4 EXTON.GLB SOUTH OF WASHINGTON BORINGS.GPJ 12/13/12

Boring Number: KE-117	Location: Mystic Junction Training Facility Parking Lot	Drilling Method: Hollow-stem auger
Boring Total Depth: 20.0 ft	Coordinates (XY, Lat/Long): 2964054.66 ft / 767626.86 ft	Drilling Equipment: Truck Rig
Depth to Cored Rock: No Rock Cored	Datum/Coordinate System: NAD83_MA_StatePlane 2001 Ft	Drilling Company: Geologic
Date Begin/End: 08-23-12 / 08-23-12	Top of Boring Elevation: 16.2 ft	Bit Size/Type: 4.25
Surface Conditions: Asphalt	Coordinate Data Source: GPS	Hammer Type/Method: automatic
WL Measurement Point: Ground Surface	Depth to Water at Time of Drilling: 8'	Hammer Drop/Weight: 30 in. / 140 lbs.
Logged By: J. Liddon	Depth to Groundwater Date/Time: 8.90' on 9/27/12	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Blows per 6 in.	Recovery Length (in.)	Pocket Pen. (tsf)	Graphic Log	USCS Symbol	Field Soil Description & Classification	Laboratory					Other Tests and Field Notes	Well Construction		
									Description	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)			Passing #200 Sieve (%)	
								SW-SM	Asphalt									
			S-1	7	12			GM	(FILL) Well Graded SAND with Silt (SW-SM), dark brown, dry, medium dense.									PID = 0.4 2.0 ft of native fill
			S-2	6	3			GM	(FILL) Silty GRAVEL with Sand (GM), dark brown, wet, medium dense.									PID = 0.4 1.0 ft of bentonite 2.0 ft of #2 sand
			WOH		18			ML	SILT (ML), dark brown, moist, very soft.									PID = 0.4
			S-3	1				ML	Top 4" Same as above.									PID = 0.3
			S-4	3	20			SW	Well Graded SAND (SW), brown, moist, medium dense.									PID = 0.3
			S-5	4	16			SW	Well Graded SAND (SW), brown, wet, medium dense.									PID = 0.3
			S-7	9	14			SW	Same as above.									PID = 0.3
			S-8	10	14			SW	Same as above.									PID = 0.5 15.0 ft of 10 slot screen with #2 sand
			S-9	12	24			MH	Elastic SILT (MH), gray, wet, stiff.									PID = 0.4
			S-10	7	16			MH	Elastic SILT (MH), red-gray, wet, very stiff.									PID = 0.5
			S-11	10	14			SW-SM	Well Graded SAND with Silt and Gravel (SW-SM), red-gray, wet, very dense. Weathered rock in spoon tip.									PID = 0.4
				15					Completed at a depth of 20.0 ft below existing site grade.									



Project Number: 2012096  
 Entry By: MJZ  
 Checked By: BJS  
 Date Checked: 12-13-12  
 Page: 1 of 1

**LOG KE-117**

South of Washington Borings





EXTON COMBINED LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD LIBRARY R4 EXTON.GLB SOUTH OF WASHINGTON BORINGS.GPJ 12/13/12

Boring Number: MW-5R	Location: Washington Street Bridge	Drilling Method: Mud Rotary
Boring Total Depth: 30.0 ft	Coordinates (X/Y, Lat/Long): 2963832.55 ft / 767615.48 ft	Drilling Equipment: CME 750
Depth to Cored Rock: No Rock Cored	Datum/Coordinate System: NAD83_MA_StatePlane 2001 Ft	Drilling Company: Geologic
Date Begin/End: 09-13-12 / 09-13-12	Top of Boring Elevation: 26.5 ft	Bit Size/Type: 4.25
Surface Conditions: Ballast	Coordinate Data Source: GPS	Hammer Type/Method: automatic
WL Measurement Point: Ground Surface	Depth to Water at Time of Drilling: 20'	Hammer Drop/Weight: 30 in. / 140 lbs.
Logged By: M. Zirolli	Depth to Groundwater Date/Time: 19.34' on 9/27/12	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Blows per 6 in.	Recovery Length (in.)	Pocket Pen. (tsf)	Graphic Log	USCS Symbol	Field Soil Description & Classification	Laboratory					Other Tests and Field Notes	Well Construction	
									Description	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)			Passing #200 Sieve (%)
			S-1	10	7			SW	(FILL) Well Graded SAND and Gravel (SW), gray brown sand with angular purple gravel, dry, medium dense.							PID = 0.0	
			S-2	12	12			SW-SM	(FILL) Well Graded SAND with Silt (SW-SM), light brown with black layers, dry, dense.							PID = 0.0	
			S-3	15	15			SW	(FILL) Well Graded SAND with Gravel (SW), light brown and black, dry, dense, with coal and ash.							PID = 0.0	
			S-4	14	14			SW	(FILL) Well Graded SAND with Gravel (SW), brown, dry, dense.							PID = 0.0	12.0 ft of native fill
			S-5	10	10			SW-SM	(FILL) Well Graded SAND with Silt and Gravel (SW-SM), orange brown, moist, dense.							PID = 0.0	
			S-6	13	13			SM	Silty SAND with Gravel (SM), orange brown, moist, medium dense, slightly plastic.							PID = 0.0	
			S-7	10	10			SM	Silty SAND (SM), orange brown, moist, medium dense, slightly plastic.							PID = 0.0	1.0 ft of bentonite
			S-8	6	6			SM	Silty SAND (SM), orange brown, moist, medium dense, slightly plastic.							PID = 0.0	2.0 ft of #2 sand
			S-9	20	20			SM	Silty SAND (SM), gray and brown, wet, dense, slightly plastic. Fuel oil odor.							PID = 63.3	
			S-10	12	12			SM	Silty SAND with Gravel (SM), wet, dense, nonplastic. Fuel oil odor.							PID = 137	
			S-11	10	10			GW-GC	Well Graded Gravel with Clay and Sand (GW-GC), orange and gray, wet, very dense. Slight odor. (Till)							PID = 6.7	
				6	6			GW-GC								PID = 0.1	



Project Number: 2012096  
 Entry By: MJZ  
 Checked By: BJS  
 Date Checked: 12-13-12  
 Page: 1 of 2

**LOG MW-5R**

South of Washington Borings



EXTON COMBINED LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD LIBRARY R4 EXTON.GLB SOUTH OF WASHINGTON BORINGS.GPJ 12/13/12

Boring Number: MW-5R	Location: Washington Street Bridge	Drilling Method: Mud Rotary
Boring Total Depth: 30.0 ft	Coordinates (X/Y, Lat/Long): 2963832.55 ft / 767615.48 ft	Drilling Equipment: CME 750
Depth to Cored Rock: No Rock Cored	Datum/Coordinate System: NAD83_MA_StatePlane 2001 Ft	Drilling Company: Geologic
Date Begin/End: 09-13-12 / 09-13-12	Top of Boring Elevation: 26.5 ft	Bit Size/Type: 4.25
Surface Conditions: Ballast	Coordinate Data Source: GPS	Hammer Type/Method: automatic
WL Measurement Point: Ground Surface	Depth to Water at Time of Drilling: 20'	Hammer Drop/Weight: 30 in. / 140 lbs.
Logged By: M. Zirolli	Depth to Groundwater Date/Time: 19.34' on 9/27/12	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Blows per 6 in.	Recovery Length (in.)	Pocket Pen. (tsf)	Graphic Log	USCS Symbol	Field Soil Description & Classification	Laboratory						Other Tests and Field Notes	Well Construction	
									Description	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)	Passing #200 Sieve (%)			
25	1.5		S-12	100/4"					<p><i>The report and log key are an integral part of these logs. All data and interpretations in this log are subject to those stated explanations and limitations.</i></p> <p>Same as above Encounter refusal at 23'. Rollerbit to 30' to set well. (layer continued from previous page)</p>								15.0 ft of 10 slot screen with #2 sand	
30	-3.5								Completed at a depth of 30.0 ft below existing site grade.									
35	-8.5																	
40	-13.5																	



Project Number: 2012096  
 Entry By: MJZ  
 Checked By: BJS  
 Date Checked: 12-13-12  
 Page: 2 of 2

**LOG MW-5R**

South of Washington Borings





GINT FILE: G:\clients\mbt\2011035 01 - Green Line Extension\08 Environmental\documents\evoc Contamination - Tufis St And Washington\Boring Logs\Washington St Area Logs.gpj R:\KLF\_STANDARD\_GINT\_LIBRARY\_2014 GLB [KLF\_ENVIRONMENTAL LOG]

Date Begin - End: 3/25/2014	Drilling Company: NH Boring	<b>BORING LOG KE-202-WS-D</b>
Logged By: B. Straley	Drill Crew: W. Hoecklemouse & B. Cross	
Hor.-Vert. Datum: NAD83 - NAVD88	Drilling Equipment: Diedrich D-50	Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Mud Rotary	
Weather: 25° F, Sunny	Casing Diameter: 4 in. O.D.	

Surveyed Elevation (feet)	Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	FIELD EXPLORATION	MONITORING WELL CONSTRUCTION
								Northing: 2,964,007.585 Easting: 767,678.028 Surveyed Ground Surface Elevation (ft.): 19.49 Surface Condition: Asphalt	Completion Method: Flush mount Cap in concrete
								Lithologic Description	
								<b>Fill:</b> Drill to 19 feet. Based on rollerbit behavior and drill cuttings, material is fill consisting of sand, cobbles and coal. No coal observed after 12 feet.	
15	5								
10	10								Drill Cuttings
5	15	Mud Rotary							2" SCH 40 Solid PVC Riser
0	20			KE-202D_19-21	24"	0.5		Based on drill cuttings, Clay at 16 feet.	
								Lean CLAY (CL): high plasticity, olive gray, wet, firm	Bentonite Chips



PROJECT NO.: 20140137  
 DRAWN BY: RI  
 CHECKED BY: BJS  
 DATE: 4/30/2014  
 REVISED: -

**BORING LOG KE-202-WS-D**  
  
 Green Line Extension  
 Near Washington St  
 Somerville, MA

PLATE  
  
**1**  
  
 PAGE: 1 of 2









GINT FILE: G:\clients\mbta\2011035\_01 - Green Line Extension\08 Environmental\documents\cvoc Contamination - Tufis St And Washington\boring Logs\washington St Area Logs.gpj R:\KLF\_STANDARD\_GINT\_LIBRARY\2014\_GLB [KLF\_ENVIRONMENTAL LOG]

Date Begin - End:	3/25/2014	Drilling Company:	NH Boring	<b>BORING LOG KE-202-WS-S</b>
Logged By:	B. Straley	Drill Crew:	W. Hoecklemouse & B. Cross	
Hor.-Vert. Datum:	NAD83 - NAVD88	Drilling Equipment:	Diedrich D-50	Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge:	-90 degrees	Drilling Method:	Mud Rotary	
Weather:	25-40° F, Sunny	Casing Diameter:	4 in. O.D.	

FIELD EXPLORATION MONITORING WELL CONSTRUCTION

Surveyed Elevation (feet)	Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description	Completion Method: Flush mount Cap in concrete
								Northing: 2,964,008.897 Easting: 767,676.345 Surveyed Ground Surface Elevation (ft.): 19.46 Surface Condition: Asphalt	
								<b>Fill:</b> Drill straight to 14 feet. Material is sandy fill.	
									Drill Cuttings Bentonite Chips 2" SCH 40 Solid PVC Riser Sand 2" SCH 40 Slotted 0.010 PVC Screen
15	5	Mud Rotary		KE-202S_14-15	13"	0.6		<b>Fill</b> Well-graded SAND (SW): dark gray, wet	
10	10								
5	15								
0	20								

The bore was terminated at approximately 20 ft. below ground surface.

**GROUNDWATER LEVEL INFORMATION:**  
 ▽ Groundwater was observed at approximately 11 ft. (Elev. = 8.49 ft.) below ground surface 7 after drilling completion.  
**GENERAL NOTES:**  
 The bore location and elevation were surveyed by Kleinfelder.



PROJECT NO.: 20140137  
 DRAWN BY: RI  
 CHECKED BY: BJS  
 DATE: 4/30/2014  
 REVISED: -

**BORING LOG KE-202-WS-S**

Green Line Extension  
 Near Washington St  
 Somerville, MA

PLATE  
  
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PAGE: 1 of 1





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Date Begin - End:	3/24/2014 - 4/02/2014	Drilling Company:	NH Boring	<b>BORING LOG KE-204</b>
Logged By:	J. Almquist	Drill Crew:	R. Burn & W. Walsh	
Hor.-Vert. Datum:	NAD83 - NAVD88	Drilling Equipment:	M-1 Track Rig	Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge:	-90 degrees	Drilling Method:	Hollow Stem Auger	
Weather:	20-40° F, Sunny	Casing Diameter:	3 in. O.D.	

FIELD EXPLORATION

MONITORING WELL CONSTRUCTION

Surveyed Elevation (feet)	Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description	Completion Method:
								Northing: 2,964,162.876 Easting: 767,489.541 Surveyed Ground Surface Elevation (ft.): 27.42 Surface Condition: Ballast	Flush mount Cap in concrete
								Lithologic Description	
				KE-204_0-1		0.0		Fill: Ballast	
						0.0		Fill Silty SAND with Gravel (SM): non-plastic, dark brown, moist	
25						0.0		Fill Silty SAND (SM): non-plastic, dark brown, moist	Sand
						0.0		Fill Silty SAND (SM): non-plastic to low plasticity, brown, moist	
5		Vac Truck				0.0		Fill Silty SAND (SM): non-plastic to low plasticity, brown, moist	
						0.0		Fill Silty SAND (SM): non-plastic to low plasticity, brown, moist	Bentonite Chips
20						0.0		Fill Silty SAND (SM): non-plastic to low plasticity, brown, moist	2" SCH 40 Solid PVC Riser
					6"	0.0		Fill Silty SAND with Gravel (SM). non-plastic to low plasticity, brown/black, moist	
					12"	0.0		Silty SAND (SM): medium plasticity, gray, moist CLAY (CL): medium plasticity, gray, moist, firm	Sand
					14"	0.0		CLAY (CL): medium plasticity, grayish brown, moist, soft to firm	
15		Hollow Stem Auger			17"	0.3		CLAY (CL): medium plasticity, grayish brown, moist, soft to firm	
					16"	0.3		CLAY (CL): brownish gray, moist, soft	
10				KE-204_18-20	16"	8.0		CLAY (CL): low plasticity, brownish gray, moist, soft Clayey SAND with Gravel (SC): low plasticity, brownish gray, moist	
								Roller bit through bolder 19.75' to 20.75'	2" SCH 40 Slotted 0.010 PVC Screen
5		Mud Rotary							
25					NR				

The bore was terminated at approximately 25.1 ft. below ground surface. Rock was encountered at a depth of 25 ft. during this bore.

GROUNDWATER LEVEL INFORMATION:

Groundwater was observed at approximately 18.5 ft. (Elev.= 8.91 ft.) below ground surface 12 days after drilling completion.

GENERAL NOTES:

The bore location and elevation were surveyed by Kleinfelder.



PROJECT NO.: 20140137  
 DRAWN BY: RI  
 CHECKED BY: BJS  
 DATE: 4/30/2014  
 REVISED: -

BORING LOG KE-204

Green Line Extension  
 Near Washington St  
 Somerville, MA

PLATE

4





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Date Begin - End: 4/01/2014	Drilling Company: NH Boring	<b>BORING LOG KE-205</b>
Logged By: J. Almquist	Drill Crew: R. Burn & W. Walsh	
Hor.-Vert. Datum: NAD83 - NAVD88	Drilling Equipment: M-1 Track Rig	Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger	
Weather: 34° F, Sunny	Casing Diameter: 3 in. O.D.	

FIELD EXPLORATION

MONITORING WELL CONSTRUCTION

Surveyed Elevation (feet)	Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description	
								Northing: 2,964,132.776 Easting: 767,404.563 Surveyed Ground Surface Elevation (ft.): 28.53 Surface Condition: Vegetation	Completion Method: Flush mount Cap in concrete
								Lithologic Description	
		Hollow Stem Auger		KE-205_0-2	10"	0.0		<b>Fill:</b> Ballast <b>Fill</b> Poorly-graded SAND with Silt (SP-SM): non-plastic, brown, moist	Sand
					12"	0.1		<b>Fill</b> Poorly-graded SAND with Silt (SP-SM): non-plastic, brown, moist	
25					10"	0.1		<b>Fill</b> Silty SAND (SM): non-plastic, brown, moist	
5					8"	0.0		<b>Fill</b> Well-graded SAND with Silt (SW-SM): non-plastic, brown, moist	Bentonite Chips
					6"	0.1		<b>Fill</b> Poorly-graded GRAVEL with Sand (GP): non-plastic, brown, moist	2" SCH 40 Solid PVC Riser
20				6"	0.1		<b>Fill</b> 2" Crushed Rock over Sandy SILT (ML): dark brown, wet		
15									Sand
		Mud Rotary		KE-205_14-16	18"	0.0		CLAY (CL): olive, wet	2" SCH 40 Slotted 0.010 PVC Screen
15									
					NR				

The bore was terminated at approximately 19.5 ft. below ground surface. Rock was encountered at a depth of 19.5 ft. during this bore.

**GROUNDWATER LEVEL INFORMATION:**

Groundwater was observed at approximately 18 ft. (Elev.= 10.52 ft.) below ground surface 12 days after drilling completion.

**GENERAL NOTES:**

The bore location and elevation were surveyed by Kleinfelder.



PROJECT NO.: 20140137  
 DRAWN BY: RI  
 CHECKED BY: BJS  
 DATE: 4/30/2014  
 REVISED: -

BORING LOG KE-205

Green Line Extension  
 Near Washington St  
 Somerville, MA

PLATE

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Date Begin - End: 3/24/2014 - 4/04/2014	Drilling Company: NH Boring	<b>BORING LOG KE-206</b>
Logged By: J. Almquist	Drill Crew: R. Burn & W. Walsh	
Hor.-Vert. Datum: NAD83 - NAVD88	Drilling Equipment: M-1 Track Rig	Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger	
Weather: 30° F, Sunny	Casing Diameter: 3 in. O.D.	

FIELD EXPLORATION	MONITORING WELL CONSTRUCTION
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Surveyed Elevation (feet)	Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description	
								Northing: 2,964,301.316 Easting: 767,379.442 Surveyed Ground Surface Elevation (ft.): 26.83 Surface Condition: Ballast	Completion Method: Flush mount Cap in concrete
	25	Vac Truck	×			0.1		Fill BALLAST	
								Fill Silty SAND (SM): non-plastic, brown	
			×			0.2		Fill Silty SAND (SM): non-plastic to low plasticity, brown, moist	
	5	Vac Truck	×			2.0		Fill Silty SAND (SM): low plasticity, brown, moist	Sand
			×					Fill Silty SAND (SM): low plasticity, brown, moist	
	20	Vac Truck	×			5.2		Fill Silty SAND (SM): low plasticity, brown, moist	Bentonite Chips
			×					Fill Silty SAND (SM): low plasticity, brown, moist	
	10	Hollow Stem Auger	×	KE-206_10-10.5	18"	21.2		Fill Sandy CLAY little Sand (CL): low to medium plasticity, brown and gray, moist	2" SCH 40 Solid PVC Riser
			×			1.3		Fill Sandy CLAY little Sand (CL): low to medium plasticity, brown and gray, moist	
	15	Hollow Stem Auger	×		16"	3.0		Fill Sandy CLAY (CL): medium plasticity, brown and gray, moist, Encounter culvert at 10.5 feet, move boring 6 feet toward railroad track.	Sand
			×					Till Silty Clayey SAND (SC-SM): low to medium plasticity, brown, moist	
	15	Hollow Stem Auger	×		6"	3.4		Till Silty Clayey SAND with Gravel (SC-SM): low to medium plasticity, brown, moist	2" SCH 40 Slotted 0.010 PVC Screen
	10	Mud Rotary	×	KE-206_17-19		34.4		Till Silty Clayey SAND with Gravel (SC-SM): low to medium plasticity, brown, wet	
	5	Mud Rotary	×		NR				

The bore was terminated at approximately 21.8 ft. below ground surface. Rock was encountered at a depth of 21.8 ft. during this bore.

**GROUNDWATER LEVEL INFORMATION:**  
 ▽ Groundwater was observed at approximately 15.5 ft. (Elev.= 11.15 ft.) below ground surface 11 days after drilling completion.  
**GENERAL NOTES:**  
 The bore location and elevation were surveyed by Kleinfelder.

 <b>KLEINFELDER</b> Bright People. Right Solutions.	PROJECT NO.: 20140137	<b>BORING LOG KE-206</b>	PLATE
	DRAWN BY: RI	Green Line Extension Near Washington St Somerville, MA	<b>6</b>
CHECKED BY: BJS	DATE: 4/30/2014		
REVISD: -			PAGE: 1 of 1











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Date Begin - End: 3/25/2014 - 4/07/2014	Drilling Company: NH Boring	<b>BORING LOG KE-208</b>
Logged By: J. Almquist/B. Straley	Drill Crew: R. Burn & W. Walsh	
Hor.-Vert. Datum: NAD83 - NAVD88	Drilling Equipment: M-1 Track Rig	Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger	
Weather: 20° F, Sunny	Casing Diameter: 3 in. O.D.	

FIELD EXPLORATION MONITORING WELL CONSTRUCTION

Surveyed Elevation (feet)	Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description	Completion Method
								Northing: 2,964,441.061 Easting: 767,259.58 Surveyed Ground Surface Elevation (ft.): 25.65 Surface Condition: Soil and Gravel	Flush mount Cap in concrete
25		Hand Auger	⊗			0.0		<b>Fill</b> Silty SAND with Gravel (SM): non-plastic, brown, moist	Drill Cuttings
		Hand Auger	⊗			0.2		<b>Fill</b> Silty SAND with Gravel (SM): non-plastic, brown, moist	2" SCH 40 Solid PVC Riser
		Hand Auger	⊗			6.4		<b>Fill</b> Silty SAND with Gravel (SM): non-plastic, brown, moist	Bentonite Chips
20	5	Hand Auger	⊗			8.2		<b>Fill</b> Silty SAND (SM): non-plastic to low plasticity, brown and gray, wet	
		Hand Auger	⊗	KE-208_8-8.5		28.1		<b>Fill</b> Sandy SILT (SM): brown and gray, wet	Sand
		Hollow Stem Auger	⊗		16"	12.2		<b>Fill</b> Sandy Lean CLAY (CL): brown, wet	2" SCH 40 Slotted 0.010 PVC Screen
15	10	Hollow Stem Auger	⊗			0.5		Culvert encountered at 10 feet, Moved 5'10" toward track and continue drilling at 9 feet. <b>Fill</b>	
		Hollow Stem Auger	⊗		16"	1.6		<b>Fill</b> Silty SAND (SP-SM): brown, dry, occasional coal and brick	
		Hollow Stem Auger	⊗					<b>Fill</b> Silty SAND with Gravel (SM): brown, wet	
		Hollow Stem Auger	⊗		8"	0.6		Well-graded SAND (SW): brown, wet	

The bore was terminated at approximately 14 ft. below ground surface. Rock was encountered at a depth of 14 ft. during this bore.

**GROUNDWATER LEVEL INFORMATION:**  
 Groundwater was observed at approximately 12 ft. (Elev. = 13.52 ft.) below ground surface 11 days after drilling completion.  
**GENERAL NOTES:**  
 The bore location and elevation were surveyed by Kleinfelder.

<p><b>KLEINFELDER</b> Bright People. Right Solutions.</p>	PROJECT NO.: 20140137	<b>BORING LOG KE-208</b>  Green Line Extension Near Washington St Somerville, MA	PLATE
	DRAWN BY: RI		8
CHECKED BY: BJS	DATE: 4/30/2014		
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Date Begin - End: <u>3/27/2014 - 3/28/2014</u>	Drilling Company: <u>NH Boring</u>	<b>BORING LOG KE-209</b>
Logged By: <u>J. Almquist</u>	Drill Crew: <u>W. Walsh, K. Downing</u>	
Hor.-Vert. Datum: <u>NAD83 - NAVD88</u>	Drilling Equipment: <u>Maruka</u>	Hammer Type - Drop: <u>140 lb. Auto - 30 in.</u>
Plunge: <u>-90 degrees</u>	Drilling Method: <u>Hollow Stem Auger</u>	
Weather: <u>22° F, Sunny</u>	Casing Diameter: <u>3 in. O.D.</u>	

FIELD EXPLORATION

MONITORING WELL CONSTRUCTION

Surveyed Elevation (feet)	Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description	Completion Method: Flush mount Cap in concrete
		Hand Auger	✕			0.5		<b>Fill</b> Poorly-graded GRAVEL with Silt and Sand (GP-GM): non-plastic, light brown, frozen	
			✕			0.3		<b>Fill</b> Silty SAND with Gravel (SM): non-plastic, dark brown, moist	
		Vac Truck	✕			0.6		<b>Fill</b> Poorly-graded SAND with Silt and Gravel (SP-SM): non-plastic, light brown, moist	
			✕			1.5		<b>Fill</b> Poorly-graded SAND with Silt and Gravel (SP-SM): non-plastic, light brown, moist, frequent coal and slag	
						0.0		<b>Fill</b> Poorly-graded SAND with Silt and Gravel (SP-SM): brown, wet, brick fragments, one 1" layer of black fine sand	
		Hollow Stem Auger		KE-209_15-17	18"	0.0		<b>Till</b> Silty SAND with Gravel (SM): non-plastic, brown, wet	

Northing: 2,964,513.285  
 Easting: 767,120.404  
 Surveyed Ground Surface Elevation (ft.): 23.69  
 Surface Condition: Soil, Packed

The bore was terminated at approximately 19 ft. below ground surface. Rock was encountered at a depth of 19 ft. during this bore.

**GROUNDWATER LEVEL INFORMATION:**  
 Groundwater was observed at approximately 9 ft. (Elev.= 14.83 ft.) below ground surface 17 days after drilling completion.  
**GENERAL NOTES:**  
 The bore location and elevation were surveyed by Kleinfelder.



PROJECT NO.: 20140137  
 DRAWN BY: RI  
 CHECKED BY: BJS  
 DATE: 4/30/2014  
 REMSED: -

**BORING LOG KE-209**

Green Line Extension  
 Near Washington St  
 Somerville, MA

PLATE  
  
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Date Begin - End: 3/25/2014 - 4/08/2014	Drilling Company: NH Boring	<b>BORING LOG KE-210</b>
Logged By: J. Almquist/B. Straley	Drill Crew: R. Burn & W. Walsh	
Hor.-Vert. Datum: NAD83 - NAVD88	Drilling Equipment: M-1 Track Rig	Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger	
Weather: 30° F, Sunny	Casing Diameter: 3 in. O.D.	

Surveyed Elevation (feet)	Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	FIELD EXPLORATION		MONITORING WELL CONSTRUCTION	
								Lithologic Description		Completion Method: Flush mount Cap in concrete	
								Northing: 2,964,549.848 Easting: 767,181.994 Surveyed Ground Surface Elevation (ft.): 24.53 Surface Condition: Ballast			
								Lithologic Description			
								Fill	Silty SAND with Gravel (SM): non-plastic, brown, moist		
								Fill	Silty SAND with Gravel (SM): non-plastic, brown, moist		
20	5	Hand Auger						Fill	Silty SAND (SM): non-plastic, gray, moist, wood fragments		Drill Cuttings
				KE-210_6-6.5				Fill	Silty SAND with Gravel (SM): non-plastic, gray, moist, wood fragments		2" SCH 40 Solid PVC Riser
								Fill	Silty GRAVEL with Sand (GM): non-plastic, gray, moist		Bentonite Chips
15	10	Hollow Stem Auger			11"	0.1			Top 4": Silty SAND (SM): non-plastic, gray, moist		
									Bottom 7": Silty SAND with Gravel (SM): non-plastic, brown, wet, occasional lenses of red-brown sand, rock in spoon tip		
					16"	11.9			Top 9": Silty SAND with Gravel (SM): non-plastic, brown, wet		Sand
									Bottom 7" LEAN CLAY with Sand: medium plasticity, gray, wet		
10	15	Mud Rotary		KE-210_15-17	15"	99.6			Clayey SAND: non-plastic to medium plasticity, gray with reddish brown and black lenses and rust colored mottling, wet, alternating layers of sand and lean clay		2" SCH 40 Slotted 0.010 PVC Screen
					1"	6.0			Clayey GRAVEL (SC): non-plastic, gray, wet		

The bore was terminated at approximately 18.3 ft. below ground surface. Rock was encountered at a depth of 18.3 ft. during this bore.

**GROUNDWATER LEVEL INFORMATION:**  
 Groundwater was observed at approximately 11 ft. (Elev.= 13.68 ft.) below ground surface 8 days after drilling completion.  
**GENERAL NOTES:**  
 The bore location and elevation were surveyed by Kleinfelder.



PROJECT NO.: 20140137  
 DRAWN BY: RI  
 CHECKED BY: BJS  
 DATE: 4/30/2014  
 REVISED: -

**BORING LOG KE-210**

Green Line Extension  
 Near Washington St  
 Somerville, MA

PLATE  
  
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Date Begin - End: 3/26/2014	Drilling Company: NH Boring	<b>BORING LOG KE-211</b>
Logged By: J. Almquist/B. Straley	Drill Crew: W. Walsh, C. Downing, R. Burn, and M. Dambioso	
Hor.-Vert. Datum: NAD83 - NAVD88	Drilling Equipment: M-1 Track Rig	Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger	
Weather: 29° F, Cloudy	Casing Diameter: 3 in. O.D.	

FIELD EXPLORATION

Northing: 2,964,725.135  
 Easting: 767,045.369  
 Surveyed Ground Surface Elevation (ft.): 22.53  
 Surface Condition: Vegetation

Surveyed Elevation (feet)	Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description	
		Hand Auger	X	KE-211_0-6		0.1	[Cross-hatch pattern]	<b>Fill</b> Silty SAND with Gravel (SM): non-plastic, brown, moist	
20			X			0.2	[Cross-hatch pattern]	<b>Fill</b> Silty SAND with Gravel (SM): non-plastic, brown, moist	
5			X			0.3	[Cross-hatch pattern]	<b>Fill</b> Silty SAND (SM): non-plastic, brown, moist	
15			X			0.3	[Cross-hatch pattern]	<b>Fill</b> Poorly-graded SAND with Silt (SP-SM): non-plastic, brown, moist	
		Hollow Stem Auger			16"	0.2	[Cross-hatch pattern]	<b>Fill</b> Poorly-graded SAND (SP): non-plastic, brown, wet	
						24"	0.8	[Cross-hatch pattern]	<b>Fill</b> Poorly-graded SAND (SP): non-plastic, brown, wet
						20"	0.2	[Cross-hatch pattern]	<b>Fill</b> Well-graded SAND with Gravel (SP): non-plastic, brown, wet
					KE-211_24-25	13"	0.4	[Cross-hatch pattern]	<b>Fill</b> Poorly-graded SAND with Silt (SP-SM): non-plastic, brown, wet, occasional gravel pockets
								[Cross-hatch pattern]	



PROJECT NO.: 20140137  
 DRAWN BY: RI  
 CHECKED BY: BJS  
 DATE: 4/30/2014  
 REMSED: -

**BORING LOG KE-211**  
  
 Green Line Extension  
 Near Washington St  
 Somerville, MA

PLATE  
  
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Date Begin - End: 3/26/2014	Drilling Company: NH Boring	BORING LOG KE-211
Logged By: J. Almquist/B. Straley	Drill Crew: W. Walsh, C. Downing, R. Burn, and M. Damboso	
Hor.-Vert. Datum: NAD83 - NAVD88	Drilling Equipment: M-1 Track Rig	Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees	Drilling Method: Hollow Stem Auger	
Weather: 29° F, Cloudy	Casing Diameter: 3 in. O.D.	

FIELD EXPLORATION

Northing: 2,964,725.135  
 Easting: 767,045.369  
 Surveyed Ground Surface Elevation (ft.): 22.53  
 Surface Condition: Vegetation

Surveyed Elevation (feet)	Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description
		Hollow Stem Auger						<p><b>Fill</b>            Poorly-graded SAND with Silt (SP-SM): non-plastic, brown, wet, occasional gravel pockets</p>
	-5							
	30				NR			<p>The bore was terminated at approximately 30 ft. below ground surface.</p>
	-10							<p><b>GROUNDWATER LEVEL INFORMATION:</b>            ☒ Groundwater was observed at approximately 9 ft. (Elev. = 13.53 ft.) below ground surface during drilling.  <b>GENERAL NOTES:</b>            The bore location and elevation were surveyed by Kleinfelder.</p>
	35							
	-15							
	40							
	-20							
	45							
	-25							

 <b>KLEINFELDER</b> <i>Bright People. Right Solutions.</i>	PROJECT NO.: 20140137	BORING LOG KE-211	PLATE
	DRAWN BY: RI		12
	CHECKED BY: BJS	Green Line Extension Near Washington St Somerville, MA	
	DATE: 4/30/2014		
	REVISED: -		
			PAGE: 2 of 2







Geotechnical  
Environmental  
Water Resources  
Ecological





## **Appendix D**

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### **Laboratory Testing Reports**

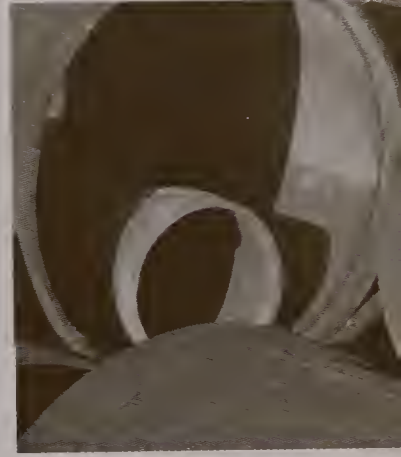
**(See enclosed CD behind Appendix B tab)**







Geotechnical  
Environmental and  
Water Resources  
Engineering





## Appendix E

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### Field Monitoring Forms and Inspection Logs





**Capuano Center Sub-Slab Depressurization System  
Monthly Mechanical Inspection Log**

**GENERAL INFORMATION**

GEI Field Representatives:	M. Keller, C. Malagrida	Outdoor Monitoring	Indoor Monitoring
	J. Roman, B. Simons	Start-time of monitoring work:	2:50 PM
Date:	01/24/14	End-time of monitoring work:	3:40 PM
Weather:	~20°F, Sunny		4:10 PM

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	GEI Identification No.	Calibrant	Successful Calibration
PID (ppm)	RAE Systems	ppmRAE3000	592-909246	100 ppm Isobutylene	Yes, 100.0 ppm
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0000-FM	N/A	N/A	Zeroed before each reading
Hot Wire Thermo-Anemometer (ft/min)	Kanomax	A034	050183	N/A	Zeroed before each reading

**OBSERVATIONS AND MEASUREMENTS**

**ENCLOSURE MEASUREMENTS**

Shed Secure?	Yes	Combined Influent Flow Rate	
Condensate Accumulated?	No	Average Flow Rate (cfm)	97.7
Condensate Drained?	NA		

**System Monitoring Points**

Port ID	Typical Vacuum Range (in. H <sub>2</sub> O)	Vacuum (in. H <sub>2</sub> O)	Typical Range of VOCs (ppb)	VOC Concentration (ppm)
Manifold 12	-0.300 to -0.500	-1.058	0 to 2000	1.1
Manifold 13	-0.300 to -0.500	-1.088	0 to 2000	0.1
Manifold 14	-0.300 to -0.500	-1.121	0 to 2000	0.1
Combined Influent	-0.600 to -0.700	-1.473	0 to 2000	1.1
Effluent	0.480 to 0.600	0.742	0 to 2000	1.2

**EXTERIOR EXTRACTION MONITORING POINT MEASUREMENTS**

Monitoring Point Identification	Status (on/off)	Vacuum (in. H <sub>2</sub> O)	VOC Concentration (ppm)
122-1	on	-0.047 to -0.185	0.8
122-2	on	-0.024 to -0.220	0.6
122-3	on	-1.125	0.2
126-1	on	-0.615 to -1.056	0.6
126-2	on	-0.488 to -0.726	0.7
126-3	on	-0.973 to -0.585	0.8
134-1	on	-0.737 to -0.899	0.9
134-2	on	-0.787 to -1.007	1.0
134-3	on	-0.800 to -0.919	0.9
138-1	on	-0.858 to -1.021	1.6
138-2	on	-0.876 to -1.012	0.5
138-3	on	-0.795 to -0.976	0.4
142-1	on	-0.136	0.1
142-2	on	-0.055	0.1
142-3	on	-0.053	0.1
146-1	on	-0.048	0.1
146-2	on	-0.045	0.1
146-3	on	-0.043	0.1



**Capuano Center Sub-Slab Depressurization System  
Monthly Mechanical Inspection Log**

**INTERIOR MEASUREMENTS**

**Ambient Air Measurements**

Classroom	VOC Concentration (ppm)
122	0.1
126	0.1
134	0.1
138	0.2
133	0.1
137	0.3
142	0.1
146	0.1

**Sub-Slab Monitoring Points**

Monitoring Point Identification	Vacuum (in. H <sub>2</sub> O)	VOC Concentration (ppm)
Room 122A	0 to -0.009	0.5
Room 126A	0.000	0.2
Room 133A	0.000	0.5
Room 137A	0.000	0.3
Room 142A	0.000	0.5
Room 146A	-0.005	0.3

**COMMENTS**

**Notes:**

- |  |                                 |
|--|---------------------------------|
| 1. Manifold 12 is the manifold pipe for rooms 122 and 126.<br>Manifold 13 is the manifold pipe for rooms 134 and 138.<br>Manifold 14 is the manifold pipe for rooms 142 and 146. | 6. ft = feet.                   |
| 2. PID = photoionization detector.   | 7. cfm = cubic feet per minute. |
| 3. ppb = parts per billion.  | 8. NA = Not Applicable.         |
| 4. ppm = parts per million.  | 9. NM = Not Measured.           |
| 5. in. H <sub>2</sub> O = inches of water column.  |                                 |





**Capuano Center Sub-Slab Depressurization System  
Monthly Mechanical Inspection Log**

**GENERAL INFORMATION**

GEI Field Representatives:                     M. Keller                      
 Date:   03/10/14    
 Weather:   ~35°F, Cloudy  

Start-time of monitoring work:   11:05 AM    
 End-time of monitoring work:   11:25 AM  

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	GEI Identification No.	Calibrant	Successful Calibration
PID (ppm)	RAE Systems	ppmRAE3000	592-909246	100 ppm Isobutylene	Yes, 100.0 ppm
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0000-FM	N/A	N/A	Zeroed before each reading
Hot Wire Thermo-Anemometer (ft/min)	Kanomax	A034	050183	N/A	Zeroed before each reading

**OBSERVATIONS AND MEASUREMENTS**

**ENCLOSURE MEASUREMENTS**

Shed Secure?   Yes    
 Condensate Accumulated?   No    
 Condensate Drained?   NA  

Combined Influent Flow Rate

Average Flow Rate (cfm)	105.2
-------------------------	-------

**System Monitoring Points**

Port ID	Typical Vacuum Range (in. H <sub>2</sub> O)	Vacuum (in. H <sub>2</sub> O)	Typical Range of VOCs (ppb)	VOC Concentration (ppm)
Manifold 12	-0.300 to -0.500	-1.552	0 to 2000	0.0
Manifold 13	-0.300 to -0.500	-1.514	0 to 2000	0.4
Manifold 14	-0.300 to -0.500	-1.915	0 to 2000	0.0
Combined Influent	-0.600 to -0.700	-1.898	0 to 2000	0.2
Effluent	0.480 to 0.600	0.644	0 to 2000	0.2

**COMMENTS**

Possible elevated water table resulting in elevated system vacuum.

**Notes:**

- |  |                                 |
|--|---------------------------------|
| 1. Manifold 12 is the manifold pipe for rooms 122 and 126.<br>Manifold 13 is the manifold pipe for rooms 134 and 138.<br>Manifold 14 is the manifold pipe for rooms 142 and 146. | 6. ft = feet.                   |
| 2. PID = photoionization detector.   | 7. cfm = cubic feet per minute. |
| 3. ppb = parts per billion.  | 8. NA = Not Applicable.         |
| 4. ppm = parts per million.  | 9. NM = Not Measured.           |
| 5. in. H <sub>2</sub> O = inches of water column.  |                                 |



**Capuano Center Sub-Slab Depressurization System  
Monthly Mechanical Inspection Log**

**GENERAL INFORMATION**

GEI Field Representatives:                     M. Keller                      
 \_\_\_\_\_  
 Date:                     04/07/14                      
 \_\_\_\_\_  
 Weather:                     ~40°F, Few Clouds                      
 \_\_\_\_\_

Start-time of monitoring work:                     3:10 PM                      
 \_\_\_\_\_  
 End-time of monitoring work:                     3:20 PM                      
 \_\_\_\_\_

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	GEI Identification No.	Calibrant	Successful Calibration
PID (ppm)	RAE Systems	ppmRAE3000	592-909246	100 ppm Isobutylene	Yes, 100.0 ppm
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0000-FM	N/A	N/A	Zeroed before each reading
Hot Wire Thermo-Anemometer (ft/min)	Kanomax	A034	050183	N/A	Zeroed before each reading

**OBSERVATIONS AND MEASUREMENTS**

**ENCLOSURE MEASUREMENTS**

Shed Secure?                     Yes                      
 \_\_\_\_\_  
 Condensate Accumulated?                     No                      
 \_\_\_\_\_  
 Condensate Drained?                     NA                      
 \_\_\_\_\_

Combined Influent Flow Rate

Average Flow Rate (cfm)	96.0
-------------------------	------

**System Monitoring Points**

Port ID	Typical Vacuum Range (in. H <sub>2</sub> O)	Vacuum (in. H <sub>2</sub> O)	Typical Range of VOCs (ppb)	VOC Concentration (ppm)
Manifold 12	-0.300 to -0.500	-0.658	0 to 2000	0.1
Manifold 13	-0.300 to -0.500	-0.643	0 to 2000	0.3
Manifold 14	-0.300 to -0.500	-0.612	0 to 2000	0.0
Combined Influent	-0.600 to -0.700	-0.623	0 to 2000	0.1
Effluent	0.480 to 0.600	0.653	0 to 2000	0.1

**COMMENTS**

**Notes:**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>1. Manifold 12 is the manifold pipe for rooms 122 and 126.<br/>Manifold 13 is the manifold pipe for rooms 134 and 138.<br/>Manifold 14 is the manifold pipe for rooms 142 and 146.</li> <li>2. PID = photoionization detector.</li> <li>3. ppb = parts per billion.</li> <li>4. ppm = parts per million.</li> <li>5. in. H<sub>2</sub>O = inches of water column.</li> </ul> | <ul style="list-style-type: none"> <li>6. ft = feet.</li> <li>7. cfm = cubic feet per minute.</li> <li>8. NA = Not Applicable.</li> <li>9. NM = Not Measured.</li> </ul> |
|---|--|





**Capuano Center Sub-Slab Depressurization System  
Monthly Mechanical Inspection Log**

GENERAL INFORMATION			
GEI Field Representatives:	M. Keller	Outdoor Monitoring	Indoor Monitoring
Date:	05/21/14	Start-time of monitoring work:	3:30 PM
Weather:	~65°F, Sunny	End-time of monitoring work:	4:20 PM
			3:05 PM
			3:30 PM

INSTRUMENTATION INFORMATION					
Instrument	Manufacturer	Model	GEI Identification No.	Calibrant	Successful Calibration
PID (ppm)	RAE Systems	ppmRAE3000	592-909246	100 ppm Isobutylene	Yes, 100.0 ppm
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0000-FM	N/A	N/A	Zeroed before each reading
Hot Wire Thermo-Anemometer (ft/min)	Kanomax	A034	050183	N/A	Zeroed before each reading

OBSERVATIONS AND MEASUREMENTS		
ENCLOSURE MEASUREMENTS		
Shed Secure?	Yes	Combined Influent Flow Rate
Condensate Accumulated?	No	Average Flow Rate (cfm)
Condensate Drained?	NA	36.9
System Monitoring Points		

Port ID	Typical Vacuum Range (in. H <sub>2</sub> O)	Vacuum (in. H <sub>2</sub> O)	Typical Range of VOCs (ppb)	VOC Concentration (ppm)
Manifold 12	-0.300 to -0.500	-0.635	0 to 2000	0.9
Manifold 13	-0.300 to -0.500	-0.659	0 to 2000	0.4
Manifold 14	-0.300 to -0.500	-0.695	0 to 2000	0.3
Combined Influent	-0.600 to -0.700	-0.996	0 to 2000	1.5
Effluent	0.480 to 0.600	0.666	0 to 2000	1.1

EXTERIOR EXTRACTION MONITORING POINT MEASUREMENTS			
Monitoring Point Identification	Status (on/off)	Vacuum (in. H <sub>2</sub> O)	VOC Concentration (ppm)
122-1	on	-0.384	1.1
122-2	on	-0.386	1.4
122-3	on	-0.361	0.5
126-1	on	-0.425	0.4
126-2	on	-0.339	0.5
126-3	on	-0.421	0.6
134-1	on	-0.586	0.7
134-2	on	-0.629	3.5
134-3	on	-0.574	4.2
138-1	on	-0.637	0.3
138-2	on	-0.628	0.2
138-3	on	-0.600	1.2
142-1	on	-0.293	3.2
142-2	on	-0.263	5.0
142-3	on	-0.246	0.1
146-1	on	-0.239	0.2
146-2	on	-0.276	0.2
146-3	on	-0.294	0.1



**Capuano Center Sub-Slab Depressurization System  
Monthly Mechanical Inspection Log**

**INTERIOR MEASUREMENTS**

**Ambient Air Measurements**

Classroom	VOC Concentration (ppm)
122	0.2
126	0.3
134	0.1
138	0.0
133	0.0
137	0.0
142	0.0
146	0.1

**Sub-Slab Monitoring Points**

Monitoring Point Identification	Vacuum (in. H <sub>2</sub> O)	VOC Concentration (ppm)
Room 122A	0.030	0.5
Room 126A	0.000	6.5
Room 133A	0.003	5.3
Room 137A	0.000	7.2
Room 142A	0.004	5.6
Room 146A	0.005	6.5

**COMMENTS**

**Notes:**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>1. Manifold 12 is the manifold pipe for rooms 122 and 126.<br/>Manifold 13 is the manifold pipe for rooms 134 and 138.<br/>Manifold 14 is the manifold pipe for rooms 142 and 146.</li> <li>2. PID = photoionization detector.</li> <li>3. ppb = parts per billion.</li> <li>4. ppm = parts per million.</li> <li>5. in. H<sub>2</sub>O = inches of water column.</li> </ul> | <ul style="list-style-type: none"> <li>6. ft = feet.</li> <li>7. cfm = cubic feet per minute.</li> <li>8. NA = Not Applicable.</li> <li>9. NM = Not Measured.</li> </ul> |
|---|--|





**60 Tufts Street  
SSDS Field Monitoring Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s):	M. Keller, C. Malagrida,	Monitoring Start Time:	4:15 PM
	J. Roman, B. Simons	Monitoring End Time:	5:00 PM
Date:	01/24/14		
Weather:	~20°F, Cloudy		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE 3000	592-909246	100 ppm Isobutylene Time:	<input checked="" type="radio"/> Y / N Cal. Reading (ppm): 100.0
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0 Series	NA	N/A	Zeroed before each reading? <input checked="" type="radio"/> Y / N
Anemomaster (CFM)	Kanomax	A034	50183	N/A	N/A

**FIELD MEASUREMENTS / OBSERVATIONS**

System Status/Configuration		Pressure/VOC Measurements			System Flow Rate Data	
		Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Velocity (feet per minute)	System Flowrate (CFM): = (PI * r <sup>2</sup> ) * ft per min
Blower Enclosure Secure?	<input checked="" type="radio"/> Y / N	North Header	NM*	NM*	2067	49
Blower On?	<input checked="" type="radio"/> Y / N	South Header	NM*	NM*		
Influent Condensate Accumulated?	<input checked="" type="radio"/> Y / N	Combined System Influent	-5.98	0.2		
Effluent Condensate Accumulated?	<input checked="" type="radio"/> Y / N	System Effluent	N/A	0.1		
Condensate Drained?	<input checked="" type="radio"/> Y / N	Blower Filter Inlet	10			
Hour Meter Reading	N/A	Blower Filter Outlet	24			
VFD Setting (Hz)	60	Ambient Air Outside Blower Enclosure		0.1		

**NOTES:**

1. ppm = parts per million.
2. CFM = cubic feet per minute.
3. PID = photoionization detector.
4. N/A = Not Applicable.
5. VOC = volatile organic compound.
6. in. H<sub>2</sub>O = inches of water column.
7. VFD = variable frequency drive.
8. Hz = Hertz.

**COMMENTS:**

\* Note: Headers not measured because we did not have access to the building.

Performed check on indoor headers and confirmed that headers are in good condition.





**60 Tufts Street  
SSDS Field Monitoring Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s):	M. Keller	Monitoring Start Time:	11:30 AM
		Monitoring End Time:	11:45 AM
Date:	03/10/14		
Weather:	~35°F, Cloudy		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE 3000	592-909246	100 ppm Isobutylene Time:	<input checked="" type="radio"/> / N Cal. Reading (ppm): 100.0
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0 Series	NA	N/A	Zeroed before each reading? <input checked="" type="radio"/> / N
Anemomaster (CFM)	Kanomax	A034	50183	N/A	N/A

**FIELD MEASUREMENTS / OBSERVATIONS**

System Status/Configuration		Pressure/VOC Measurements			System Flow Rate Data	
		Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Velocity (feet per minute)	System Flowrate (CFM): = (PI * r <sup>2</sup> ) * ft per min
Blower Enclosure Secure?	<input checked="" type="radio"/> / N	North Header	NM*	NM*	2402	205
Blower On?	<input checked="" type="radio"/> / N	South Header	NM*	NM*		
Influent Condensate Accumulated?	<input checked="" type="radio"/> / N	Combined System Influent	-4.993	0.0		
Effluent Condensate Accumulated?	<input checked="" type="radio"/> / N	System Effluent	N/A	0.0		
Condensate Drained?	<input checked="" type="radio"/> / N	Blower Filter Inlet	10			
Hour Meter Reading	N/A	Blower Filter Outlet	22			
VFD Setting (Hz)	60	Ambient Air Outside Blower Enclosure		0.0		

**NOTES:**

1. ppm = parts per million.
2. CFM = cubic feet per minute.
3. PID = photoionization detector.
4. N/A = Not Applicable.
5. VOC = volatile organic compound.
6. in. H<sub>2</sub>O = inches of water column.
7. VFD = variable frequency drive.
8. Hz = Hertz.

**COMMENTS:**

\* Note: Headers not measured because we did not have access to the building.





**60 Tufts Street  
SSDS Field Monitoring Form**

**GENERAL MONITORING INFORMATION**

<b>GEI Field Representative(s):</b>	M. Keller	<b>Monitoring Start Time:</b>	7:30 AM
		<b>Monitoring End Time:</b>	7:50 AM
<b>Date:</b>	04/07/14		
<b>Weather:</b>	~40°F, Few Clouds		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE 3000	592-909246	100 ppm Isobutylene Time: 06:50 AM	<input checked="" type="radio"/> / N Cal. Reading (ppm): 100.0
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0 Series	NA	N/A	Zeroed before each reading? <input checked="" type="radio"/> / N
Anemomaster (CFM)	Kanomax	A034	50183	N/A	N/A

**FIELD MEASUREMENTS / OBSERVATIONS**

System Status/Configuration		Pressure/VOC Measurements			System Flow Rate Data	
		Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Velocity (feet per minute)	System Flowrate (CFM): = (PI * r <sup>2</sup> ) * ft per min
Blower Enclosure Secure?	<input checked="" type="radio"/> / N	North Header	NM*	NM*	2520	215
Blower On?	<input checked="" type="radio"/> / N	South Header	NM*	NM*		
Influent Condensate Accumulated?	<input checked="" type="radio"/> / N	Combined System Influent	-5.20	0.2		
Effluent Condensate Accumulated?	<input checked="" type="radio"/> / N	System Effluent	N/A	0.2		
Condensate Drained?	<input checked="" type="radio"/> / N	Blower Filter Inlet	10			
Hour Meter Reading	N/A	Blower Filter Outlet	23			
VFD Setting (Hz)	60	Ambient Air Outside Blower Enclosure		0.0		

**NOTES:**

1. ppm = parts per million.
2. CFM = cubic feet per minute.
3. PID = photoionization detector.
4. N/A = Not Applicable.
5. VOC = volatile organic compound.
6. in. H<sub>2</sub>O = inches of water column.
7. VFD = variable frequency drive.
8. Hz = Hertz.

**COMMENTS:**

\* Note: Headers not measured because we did not have access to the building.





**60 Tufts Street  
SSDS Field Monitoring Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s):	M. Keller	Monitoring Start Time:	5:00 PM
Date:	05/21/14	Monitoring End Time:	5:20 PM
Weather:	~70°F, Sunny		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE 3000	592-909246	100 ppm Isobutylene Time: 2:55 PM	<input checked="" type="radio"/> / N Cal. Reading (ppm): 100.1
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0 Series	NA	N/A	Zeroed before each reading? <input checked="" type="radio"/> / N
Anemomaster (CFM)	Kanomax	A034	50183	N/A	N/A

**FIELD MEASUREMENTS / OBSERVATIONS**

System Status/Configuration		Pressure/VOC Measurements			System Flow Rate Data	
		Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Velocity (feet per minute)	System Flowrate (CFM): = (PI * r <sup>2</sup> ) * ft per min
Blower Enclosure Secure?	<input checked="" type="radio"/> / N	North Header	NM*	NM*	2025	173
Blower On?	<input checked="" type="radio"/> / N	South Header	NM*	NM*		
Influent Condensate Accumulated?	Y / <input checked="" type="radio"/> N	Combined System Influent	-5.15	0.1		
Effluent Condensate Accumulated?	Y / <input checked="" type="radio"/> N	System Effluent	N/A	0.1		
Condensate Drained?	Y / <input checked="" type="radio"/> N	Blower Filter Inlet	11			
Hour Meter Reading	N/A	Blower Filter Outlet	24			
VFD Setting (Hz)	60	Ambient Air Outside Blower Enclosure		0.0		

**NOTES:**

1. ppm = parts per million.
2. CFM = cubic feet per minute.
3. PID = photoionization detector.
4. N/A = Not Applicable.
5. VOC = volatile organic compound.
6. in. H<sub>2</sub>O = inches of water column.
7. VFD = variable frequency drive.
8. Hz = Hertz.

**COMMENTS:**

\* Note: Headers not measured because we did not have access to the building.





**50 Tufts Street Sub-Slab Depressurization System  
Monthly Monitoring Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s):	Catherine Malagrida	Monitoring Start Time:	1:30 PM
		Monitoring End Time:	2:00 PM
Date:	02/04/14		
Weather:	Clear, sunny, ~25°F		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	MiniRAE 3000	100 ppm Isobutylene	Y / N 100 ppm
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0 Series	N/A	Zeroed before each reading
Anemomaster (CFM)	Kanomax	A034	N/A	N/A

**FIELD MEASUREMENTS & OBSERVATIONS**

System Status/Configuration		Pressure/VOC Measurements			System Flow Rate Data	
		Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Velocity (ft/min)	System Flowrate (CFM):
Fenced Enclosure Secure?	Y	West Header	-2.64	5	3417	NM
Blower On?	Y	Center Header	-2.633	8.4		
Condensate Accumulated?	NA	East Header	-2.009	4.6		
Condensate Drained?	NA	North Header	-2.899	NM		
Hour Meter Reading?	59075.9	South Header	-2.763	18.7		
Lead Carbon Unit?	A	Combined System Influent	-5.949	7.1		
Secondary Carbon Unit?	B	Blower Effluent	53	8.1		
Polish Carbon Unit?	NA	Lead Carbon Effluent	0.57	0		
VFD Setting (Hz)	60	Secondary Carbon Effluent	1.43	0		
		System Effluent	Effluent is secondary tank - Tank C offline			
		Ambient Air		0		
		Blower Filter Inlet	-14			
		Blower Filter Outlet	-24			

Tank Exterior Monitoring	
Bubbling Paint Visible?	
Tank	Y/N
A	Y
B	Y
C	Y

Rust Visible?	
Tank	Y/N
A	Y
B	Y
C	Y

**ABBREVIATIONS**

ppm = parts per million  
 CFM = cubic feet per minute  
 ft/min = feet per minute  
 PID = photoionization detector  
 N/A = Not Applicable  
 VOC = volatile organic compound  
 in. H<sub>2</sub>O = inches of water column  
 NM = Not Measured  
 VFD = Variable Frequency Drive

**COMMENTS**

VOC readings taken with PID with 10.6 lamp installed.



**50 Tufts Street Sub-Slab Depressurization System  
Monthly Monitoring Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s):	Catherine Malagrida	Monitoring Start Time:	10:30 AM
	Joe Roman	Monitoring End Time:	11:15 AM
Date:	02/10/14		
Weather:	Clear, sunny, ~25°F		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	MiniRAE 3000	100 ppm Isobutylene	Y / N 100.0 ppm
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0 Series	N/A	Zeroed before each reading
Anemomaster (CFM)	Kanomax	A034	N/A	N/A

**FIELD MEASUREMENTS & OBSERVATIONS**

System Status/Configuration		Pressure/VOC Measurements			System Flow Rate Data	
Fenced Enclosure Secure?	Y	Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Velocity (ft/min)	System Flowrate (CFM):
Blower On?	Y	West Header	-2.649	6	2402	NM
Condensate Accumulated?	NA	Center Header	-2.561	9.6		
Condensate Drained?	NA	East Header	-2.01	5		
Hour Meter Reading?	59216.8	North Header	-2.721	12.5		
Lead Carbon Unit?	A	South Header	-2.706	11.2		
Secondary Carbon Unit?	B	Combined System Influent	-5.939	9.2		
Polish Carbon Unit?	NA	Blower Effluent	52	8.8		
VFD Setting (Hz)	60	Lead Carbon Effluent	4.66	0.1		
		Secondary Carbon Effluent	1.49	0.1		
		System Effluent	Effluent is secondary tank - Tank C offline			
		Ambient Air		0		
		Blower Filter Inlet	-14			
		Blower Filter Outlet	-24			

Tank Exterior Monitoring	
Bubbling Paint Visible?	
Tank	Y/N
A	Y
B	Y
C	Y

Rust Visible?	
Tank	Y/N
A	Y
B	Y
C	Y

**ABBREVIATIONS**

ppm = parts per million  
 CFM = cubic feet per minute  
 ft/min = feet per minute  
 PID = photoionization detector  
 N/A = Not Applicable  
 VOC = volatile organic compound  
 in. H<sub>2</sub>O = inches of water column  
 NM = Not Measured  
 VFD = Variable Frequency Drive

**COMMENTS**

VOC readings taken with PID with 10.6 lamp installed.







**50 Tufts Street Sub-Slab Depressurization System  
Monthly Monitoring Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s):	M. Keller	Monitoring Start Time:	6:50 AM
		Monitoring End Time:	7:30 AM
Date:	04/07/14		
Weather:	Few Clouds, ~40°F		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	MiniRAE 3000	100 ppm Isobutylene	Y / N 100 ppm
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0 Series	N/A	Zeroed before each reading
Anemomaster (CFM)	Kanomax	A034	N/A	N/A

**FIELD MEASUREMENTS & OBSERVATIONS**

System Status/Configuration		Pressure/VOC Measurements			System Flow Rate Data	
		Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Velocity (ft/min)	System Flowrate (CFM):
Fenced Enclosure Secure?	Y	West Header	-2.52	2.8	3307	NM
Blower On?	Y	Center Header	-2.43	6.6		
Condensate Accumulated?	NA	East Header	-2.02	3.2		
Condensate Drained?	NA	North Header	-2.65	16.6		
Hour Meter Reading?	60556	South Header	-2.68	9.6		
Lead Carbon Unit?	A	Combined System Influent	-5.293	4.2		
Secondary Carbon Unit?	B	Blower Effluent	58	4.5		
Polish Carbon Unit?	NA	Lead Carbon Effluent	0.49	0.0		
VFD Setting (Hz)	60	Secondary Carbon Effluent	1.37	0.0		
		System Effluent	Effluent is secondary tank - Tank C offline			
		Ambient Air		0.0		
		Blower Filter Inlet	-12			
		Blower Filter Outlet	-24			

Tank Exterior Monitoring	
Bubbling Paint Visible?	
Tank	Y/N
A	Y
B	Y
C	Y
Rust Visible?	
Tank	Y/N
A	Y
B	Y
C	Y

**ABBREVIATIONS**

ppm = parts per million  
 CFM = cubic feet per minute  
 ft/min = feet per minute  
 PID = photoionization detector  
 N/A = Not Applicable  
 VOC = volatile organic compound  
 in. H<sub>2</sub>O = inches of water column  
 NM = Not Measured  
 VFD = Variable Frequency Drive

**COMMENTS**

VOC readings taken with PID with 10.6 lamp installed.



**50 Tufts Street Sub-Slab Depressurization System  
Monthly Monitoring Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s):	M. Keller	Monitoring Start Time:	4:20 PM
		Monitoring End Time:	5:00 PM
Date:	05/21/14		
Weather:	Sunny, ~70°F		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	MiniRAE 3000	100 ppm Isobutylene	Y / N 100.1 ppm
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark III-475-0 Series	N/A	Zeroed before each reading
Anemomaster (CFM)	Kanomax	A034	N/A	N/A

**FIELD MEASUREMENTS & OBSERVATIONS**

System Status/Configuration		Pressure/VOC Measurements			System Flow Rate Data	
		Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Velocity (ft/min)	System Flowrate (CFM):
Fenced Enclosure Secure?	Y	West Header	-2.57	4.7	3327	NM
Blower On?	Y	Center Header	-2.57	7.5		
Condensate Accumulated?	NA	East Header	-2.07	4.4		
Condensate Drained?	NA	North Header	-2.59	9.0		
Hour Meter Reading?	61621.3	South Header	-2.62	20.3		
Lead Carbon Unit?	A	Combined System Influent	-5.53	7.5		
Secondary Carbon Unit?	B	Blower Effluent	54	8.1		
Polish Carbon Unit?	NA	Lead Carbon Effluent	40.83	5.1		
VFD Setting (Hz)	60	Secondary Carbon Effluent	1.24	0.2		
		System Effluent	Effluent is secondary tank - Tank C offline			
		Ambient Air		0.1		
		Blower Filter Inlet	-10			
		Blower Filter Outlet	-23			

Tank Exterior Monitoring	
Bubbling Paint Visible?	
Tank	Y/N
A	Y
B	Y
C	Y

Rust Visible?	
Tank	Y/N
A	Y
B	Y
C	Y

**ABBREVIATIONS**

ppm = parts per million  
 CFM = cubic feet per minute  
 ft/min = feet per minute  
 PID = photoionization detector  
 N/A = Not Applicable  
 VOC = volatile organic compound  
 in. H<sub>2</sub>O = inches of water column  
 NM = Not Measured  
 VFD = Variable Frequency Drive

**COMMENTS**

VOC readings taken with PID with 10.6 lamp installed.









# SYSTEM SAMPLING CHECKLIST

Sampling Location:

Sample ID: 045163-50TUFTS-INF

Date: 2/10/14

Sampling personnel: Catherine Malagrida / Joseph Roman

Summa Canister ID: M265

Flow Regulator ID: MC095

Sample Type / Analysis Method: TO-15/Summa

Sampling Start Time: 1125

Sampling Finish Time: 1142

During Sampling	
Time	Vacuum
11:30	18

Did Summa Canister go to ambient pressure? No

Pressure gauge reading (Pre-opening): Flow Controller: 24 in/hr

Pressure gauge reading (After sample collected): Flow Controller: 4.0 in/hr

Environmental Conditions (Outside):

Before Sampling

After Sampling

Temperature: 20 °F

20 °F

Barometric Pressure: 29.07 in. Hg

29.09 in. Hg

Prevailing Wind Direction: Calm

Calm

General Weather Conditions: Clear, sunny

Clear, sunny

Photographs taken before sampling? Yes If Yes, what time: 1130 Taken by: CMM

Photographs taken after sampling? No If Yes, what time: NA Taken by: NA

Comments:

Vacuum prior to sampling: 52 in. wc

Ambient air concentration: 0 ppm

Soil gas concentration prior to sampling: 8.8 ppm.

Length of time for air purging prior to sampling: NA

Notes:





# SYSTEM SAMPLING CHECKLIST

Sampling Location:

Sample ID: 045163-50TUFTS-EFF

Date: 2/10/14

Sampling personnel: Catherine Malagrida / Joseph Roman

Summa Canister ID: M024

Flow Regulator ID: MC182

Sample Type / Analysis Method: TO-15/Summa

Sampling Start Time: 1126

Sampling Finish Time: 1220

During Sampling	
Time	Vacuum
1140	23
1211	9.5

Did Summa Canister go to ambient pressure? No

Pressure gauge reading (Pre-opening): Flow Controller: 30 in/hr

Pressure gauge reading (After sample collected): Flow Controller: 4 in/hr

Environmental Conditions (Outside):

Before Sampling

After Sampling

Temperature: 20 °F

20 °F

Barometric Pressure: 29.07 in. Hg

29.09 in. Hg

Prevailing Wind Direction: Calm

Calm

General Weather Conditions: Clear, sunny

Clear, sunny

Photographs taken before sampling? Yes If Yes, what time: 1127 Taken by: CMM

Photographs taken after sampling? No If Yes, what time: NA Taken by: NA

### Comments:

Vacuum prior to sampling: 1.49 in. wc

Ambient air concentration: 0 ppm

Soil gas concentration prior to sampling: 0.1 ppm

Length of time for air purging prior to sampling: NA

### Notes:







Geotechnical  
Environmental and  
Water Resources  
Engineering





# Appendix F

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## EPMM Inspection Forms





**EPMM Options 2 and 3  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION FOR PASSIVE EPEM SYSTEMS**

GEI Field Representative(s): M. Keller, C. Malagrida  
 J. Roman, B. Simmons  
 Date: 03/14/14  
 Weather: Sunny, 25°

Property Address: 95R Franklin Street  
 Monitoring Start Time: 10:35 AM  
 Monitoring End Time: 10:45 AM  
 Option 2 or 3:  2 / 3

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<input checked="" type="radio"/> Y / N Cal. Reading (ppm): 100.0

**FIELD MEASUREMENTS / OBSERVATIONS**

**System Status/Configuration**

Exterior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Interior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Epoxy Condition (cracks, peeling, water damage, etc.)?	good / <input checked="" type="radio"/> fair / poor
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N
Downdraft Prevention Cap Present?	<input checked="" type="radio"/> Y / N

**NOTES**

- EPMM = Exposure Pathway Mitigation Measure.
- Option 2 = Consists of a venting system installed in a shallow trench around the interior basement floor perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- Option 3 = Consists of a venting system installed beneath the basement floor, a new concrete floor slab, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- ppm = parts per million.
- PID = photoionization detector.
- VOC = volatile organic compound.

**COMMENTS**

- Ambient Air = 0.2 ppm
- Peeling epoxy by the washer and dryer.
- Some paints and cleaning supplies in the basement. Well should possibly be grouted.
- Crawl Space Ambient Air = 0.1 ppm



**EPMM Option 1  
Field Monitoring / Inspection Form**

GENERAL MONITORING INFORMATION			
GEI Field Representative(s):	M. Keller, C. Malagrida	Address:	31-33 Knowlton Street
	J. Roman, B. Simmons	Monitoring Start Time:	10:50 AM
Date:	03/14/14	Monitoring End Time:	11:20 AM
Weather:	Sunny, 25°		

INSTRUMENTATION INFORMATION					
Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<input checked="" type="radio"/> N Cal. Reading (ppm): 100.0
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark 111-475-0 Series		N/A	Zeroed before each reading? <input checked="" type="radio"/> N

FIELD MEASUREMENTS / OBSERVATIONS					
System Status/Configuration		Pressure/VOC Measurements			
		Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Location Description (e.g., distance from foundation walls)
Radon Fan On?	<input checked="" type="radio"/> N	System Influent Pipe (Dwyer Manometer)	NM	1.9	
Exterior Fan Condition (housing, wires, etc)?	<input checked="" type="radio"/> good / fair / poor	SS1	NM	NM	
Excessive fan noise?	Y / <input checked="" type="radio"/> N	SS2	NM	NM	
Interior Extraction Pipe Condition (cracks, damage, etc)?	<input checked="" type="radio"/> good / fair / poor	Ambient Air	N/A	0.5	
Exterior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor				
Leaks Around Slab Penetrations?	Y / <input checked="" type="radio"/> N				
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N				

**NOTES:**

1. EPMM = Exposure Pathway Mitigation Measure.  
 2. ppm = parts per million.  
 3. PID = photoionization detector.  
 4. N/A = Not Applicable.  
 5. VOC = volatile organic compound.  
 6. in. H<sub>2</sub>O = inches of water column.  
 7. NM = Not Measured

**COMMENTS:**

1. Water was not visible seeping through cracks in the floor or at the system penetrations, however there hadn't been a significant precipitation event recently. The homeowner indicated that during heavy rain, flooding is an issue.







**EPMM Options 2 and 3  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION FOR PASSIVE EPMM SYSTEMS**

GEI Field Representative(s): M. Keller, C. Malagrida  
J. Roman, B. Simmons

Date: 03/14/14

Weather: Sunny, 25°

Property Address: 12 Morton Street

Monitoring Start Time: 11:20 AM

Monitoring End Time: 11:30 AM

Option 2 or 3: 2 / 3

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<input checked="" type="radio"/> Y / N Cal. Reading (ppm): 100.0

**FIELD MEASUREMENTS / OBSERVATIONS**

**System Status/Configuration**

Exterior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Interior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Epoxy Condition (cracks, peeling, water damage, etc.)?	good / <input checked="" type="radio"/> fair / poor
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N
Downdraft Prevention Cap Present?	<input checked="" type="radio"/> Y / N

**NOTES**

- EPMM = Exposure Pathway Mitigation Measure.
- Option 2 = Consists of a venting system installed in a shallow trench around the interior basement floor perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- Option 3 = Consists of a venting system installed beneath the basement floor, a new concrete floor slab, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- ppm = parts per million.
- PID = photoionization detector.
- VOC = volatile organic compound.

**COMMENTS**

- Ambient Air = 0.2 ppm
- Some cracking and peeling epoxy near the water heater/washer and dryer area.



**EPMM Options 2 and 3  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION FOR PASSIVE EPMM SYSTEMS**

GEI Field Representative(s): C. Malagrida

Date: 04/28/14

Weather: Overcast, ~55°F

Property Address: 32 Knowlton Street

Monitoring Start Time: 1510

Monitoring End Time: 1520

Option 2 or 3: 2 / 3

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<input checked="" type="radio"/> Y / N Cal. Reading (ppm): 100.1

**FIELD MEASUREMENTS / OBSERVATIONS**

**System Status/Configuration**

Exterior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Interior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Epoxy Condition (cracks, peeling, water damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N
Downdraft Prevention Cap Present?	<input checked="" type="radio"/> Y / N

**NOTES**

- EPMM = Exposure Pathway Mitigation Measure.
- Option 2 = Consists of a venting system installed in a shallow trench around the interior basement floor perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- Option 3 = Consists of a venting system installed beneath the basement floor, a new concrete floor slab, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- ppm = parts per million.
- PID = photoionization detector.
- VOC = volatile organic compound.

**COMMENTS**

- Owner said water was entering basement around the northeast corner during construction activities at 34 Knowlton. Basement is partially finished with some SSDS pipes hidden behind walls. Visible piping in good condition. Exterior piping appeared in good condition.







**EPMM Options 2 and 3  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION FOR PASSIVE EPMM SYSTEMS**

GEI Field Representative(s):	C. Malagrida	Property Address:	166-168 Glen Street
Date:	04/29/14	Monitoring Start Time:	0720
Weather:	Overcast, rain ~45°F	Monitoring End Time:	0732
		Option 2 or 3:	2 / <b>3</b>

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<b>Y</b> / N Cal. Reading (ppm): 99.7

**FIELD MEASUREMENTS / OBSERVATIONS**

**System Status/Configuration**

Exterior Pipe Condition (cracks, damage, etc.)?	<b>good</b> / fair / poor
Interior Pipe Condition (cracks, damage, etc.)?	<b>good</b> / fair / poor
Epoxy Condition (cracks, peeling, water damage, etc.)?	good / <b>fair</b> / poor
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <b>N</b>
Downdraft Prevention Cap Present?	Y / <b>N</b>

**NOTES**

1. EPMM = Exposure Pathway Mitigation Measure.
2. Option 2 = Consists of a venting system installed in a shallow trench around the interior basement floor perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
4. Option 3 = Consists of a venting system installed beneath the basement floor, a new concrete floor slab, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
5. ppm = parts per million.
6. PID = photoionization detector.
7. VOC = volatile organic compound.

**COMMENTS**

1. Water staining on epoxy on chimney and floor.



**EPEM Option 1  
Field Monitoring / Inspection Form**

GENERAL MONITORING INFORMATION			
GEI Field Representative(s):	C. Malagrida	Address:	13 Knowlton Street
		Monitoring Start Time:	0800
Date:	04/29/14	Monitoring End Time:	0815
Weather:	Overcast, ~45°F		

INSTRUMENTATION INFORMATION					
Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene Time:	<input checked="" type="radio"/> Y / <input type="radio"/> N Cal. Reading (ppm): 99.7
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark 111-475-0 Series		N/A	Zeroed before each reading? <input checked="" type="radio"/> Y / <input type="radio"/> N

FIELD MEASUREMENTS / OBSERVATIONS					
System Status/Configuration		Pressure/VOC Measurements			
		Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Location Description (e.g., distance from foundation walls)
Radon Fan On?	<input checked="" type="radio"/> Y / <input type="radio"/> N	SSVS Influent Pipe	-0.503	0.617	
Exterior Fan Condition (housing, wires, etc)?	<input checked="" type="radio"/> good / fair / poor	SS1	-0.047	0.117	
Excessive fan noise?	Y / <input checked="" type="radio"/> N	AA	N/A	0.111	
Interior Extraction Pipe Condition (cracks, damage, etc)?	<input checked="" type="radio"/> good / fair / poor				
Exterior Pipe Condition (cracks, damage, etc)?	<input checked="" type="radio"/> good / fair / poor				
Leaks Around Slab Penetrations?	Y / <input checked="" type="radio"/> N				
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N				

NOTES:
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1. ppm = parts per million.
2. PID = photoionization detector.
3. N/A = Not Applicable.
4. VOC = volatile organic compound.
5. in. H<sub>2</sub>O = inches of water column.
6. NM = Not Measured.

COMMENTS:





**EPMM Option 1  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s):	C. Malagrida	Address:	95 Franklin Street
		Monitoring Start Time:	0825
Date:	04/29/14	Monitoring End Time:	0835
Weather:	Overcast, rain ~45°F		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene Time:	<input checked="" type="radio"/> N Cal. Reading (ppm): 99.7
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark 111-475-0 Series		N/A	Zeroed before each reading? <input checked="" type="radio"/> Y / N

**FIELD MEASUREMENTS / OBSERVATIONS**

System Status/Configuration	Pressure/VOC Measurements			
	Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Location Description (e.g., distance from foundation walls)
Radon Fan On?	<input checked="" type="radio"/> Y / N			
Exterior Fan Condition (housing, wires, etc)?	<input checked="" type="radio"/> good / fair / poor			
Excessive fan noise?	Y / <input checked="" type="radio"/> N			
Interior Extraction Pipe Condition (cracks, damage, etc)?	<input checked="" type="radio"/> good / fair / poor			
Exterior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor			
Leaks Around Slab Penetrations?	Y / <input checked="" type="radio"/> N			
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N			

**NOTES:**

1. EPMM = Exposure Pathway Mitigation Measure.
2. ppm = parts per million.
3. PID = photoionization detector.
4. N/A = Not Applicable.
5. VOC = volatile organic compound.
6. in. H<sub>2</sub>O = inches of water column.
7. NM = Not Measured.

**COMMENTS:**

1. Two patches of epoxy cracked and peeling on floor near furnace.



**EPEM Option 1  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s):	C. Malagrida	Address:	18 Morton Street
		Monitoring Start Time:	0920
Date:	04/29/14	Monitoring End Time:	0930
Weather:	Overcast, ~45°F		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene Time:	<input checked="" type="radio"/> N Cal. Reading (ppm): 99.7
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark 111-475-0 Series		N/A	Zeroed before each reading? <input checked="" type="radio"/> Y <input type="radio"/> N

**FIELD MEASUREMENTS / OBSERVATIONS**

System Status/Configuration	Pressure/VOC Measurements			
	Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Location Description (e.g., distance from foundation walls)
Radon Fan On?	<input checked="" type="radio"/> Y / <input type="radio"/> N	System Influent Pipe	-1.223	1.7
Exterior Fan Condition (housing, wires, etc)?	<input checked="" type="radio"/> good / fair / <input type="radio"/> poor	SS1	-0.162	0.9
Excessive fan noise?	Y <input checked="" type="radio"/> <input type="radio"/> N	SS2	-0.008	1.8
Interior Extraction Pipe Condition (cracks, damage, etc)?	<input checked="" type="radio"/> good / fair / <input type="radio"/> poor	AA	N/A	0.0
Exterior Pipe Condition (cracks, damage, etc)?	<input checked="" type="radio"/> good / fair / <input type="radio"/> poor			
Leaks Around Slab Penetrations?	Y <input checked="" type="radio"/> <input type="radio"/> N			
Slab or Wall Cracks / Openings That Impair System Performance?	Y <input checked="" type="radio"/> <input type="radio"/> N			

**NOTES:**

1. ppm = parts per million.
2. PID = photoionization detector.
3. N/A = Not Applicable.
4. VOC = volatile organic compound.
5. in. H<sub>2</sub>O = inches of water column.
6. NM = Not Measured.

**COMMENTS:**





**EPMM Options 2 and 3  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION FOR PASSIVE EPMM SYSTEMS**

GEI Field Representative(s):	C. Malagrida	Property Address:	27 Tufts Street
Date:	04/29/14	Monitoring Start Time:	0950
Weather:	Overcast, ~45°F	Monitoring End Time:	1000
		Option 2 or 3:	2 / <b>3</b>

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<b>Y</b> / N Cal. Reading (ppm): 99.7

**FIELD MEASUREMENTS / OBSERVATIONS**

**System Status/Configuration**

Exterior Pipe Condition (cracks, damage, etc.)?	<b>good</b> / fair / poor
Interior Pipe Condition (cracks, damage, etc.)?	<b>good</b> / fair / poor
Epoxy Condition (cracks, peeling, water damage, etc.)?	<b>good</b> / fair / poor
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <b>N</b>
Downdraft Prevention Cap Present?	Y / <b>N</b>

**NOTES**

1. EPMM = Exposure Pathway Mitigation Measure.
2. Option 2 = Consists of a venting system installed in a shallow trench around the interior basement floor perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
4. Option 3 = Consists of a venting system installed beneath the basement floor, a new concrete floor slab, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
5. ppm = parts per million.
6. PID = photoionization detector.
7. VOC = volatile organic compound.

**COMMENTS**

1. Water staining near basement stairs.
2. Exposed mesh near SSDS piping wall penetration.



**EPMM Options 2 and 3  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION FOR PASSIVE EPEM SYSTEMS**

GEI Field Representative(s): C. Malagrida

Date: 04/29/14

Weather: Overcast, ~45°F

Property Address: 17 Knowlton Street

Monitoring Start Time: 1010

Monitoring End Time: 1020

Option 2 or 3: 2 / 3

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<input checked="" type="radio"/> Y / N Cal. Reading (ppm): 99.7

**FIELD MEASUREMENTS / OBSERVATIONS**

**System Status/Configuration**

Exterior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Interior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Epoxy Condition (cracks, peeling, water damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N
Downdraft Prevention Cap Present?	Y / <input checked="" type="radio"/> N

**NOTES**

- EPMM = Exposure Pathway Mitigation Measure.
- Option 2 = Consists of a venting system installed in a shallow trench around the interior basement floor perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- Option 3 = Consists of a venting system installed beneath the basement floor, a new concrete floor slab, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- ppm = parts per million.
- PID = photoionization detector.
- VOC = volatile organic compound.

**COMMENTS**

- Crack in epoxy on floor of basement.





**EPMM Options 2 and 3  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION FOR PASSIVE EPMM SYSTEMS**

GEI Field Representative(s): C. Malagrida

Date: 04/30/14

Weather: Rain, ~45°F

Property Address: 19-19A Morton Street

Monitoring Start Time: 1715

Monitoring End Time: 1730

Option 2 or 3: 2 / 3

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<input checked="" type="radio"/> Y / N Cal. Reading (ppm): 100.1

**FIELD MEASUREMENTS / OBSERVATIONS**

**System Status/Configuration**

Exterior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Interior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Epoxy Condition (cracks, peeling, water damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N
Downdraft Prevention Cap Present?	<input checked="" type="radio"/> Y / N

**NOTES**

- EPMM = Exposure Pathway Mitigation Measure.
- Option 2 = Consists of a venting system installed in a shallow trench around the interior basement floor perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- Option 3 = Consists of a venting system installed beneath the basement floor, a new concrete floor slab, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- ppm = parts per million.
- PID = photoionization detector.
- VOC = volatile organic compound.

**COMMENTS**

- Observed peeling epoxy beneath piping near stairs and on north basement wall.



**EPMM Option 1  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s):	M. Keller	Address:	9 Knowlton Street
		Monitoring Start Time:	8:00 AM
Date:	05/02/14	Monitoring End Time:	8:10 AM
Weather:	Overcast/Light Rain, 55°		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<input checked="" type="radio"/> Y / <input type="radio"/> N Cal. Reading (ppm): 100.0
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark 111-475-0 Series		N/A	Zeroed before each reading? <input checked="" type="radio"/> Y / <input type="radio"/> N

**FIELD MEASUREMENTS / OBSERVATIONS**

System Status/Configuration	Pressure/VOC Measurements				
	Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Location Description (e.g., distance from foundation walls)	
Radon Fan On?	<input checked="" type="radio"/> Y / <input type="radio"/> N	System Influent Pipe	-0.7	0.8	
Exterior Fan Condition (housing, wires, etc)?	<input checked="" type="radio"/> good / fair / poor	SS1	0.000	1.1	Near water heater in the center of the basement.
Excessive fan noise?	Y / <input checked="" type="radio"/> N				
Interior Extraction Pipe Condition (cracks, damage, etc)?	<input checked="" type="radio"/> good / fair / poor				
Exterior Pipe Condition (cracks, damage, etc)?	<input checked="" type="radio"/> good / fair / poor				
Leaks Around Slab Penetrations?	Y / <input checked="" type="radio"/> N				
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N				

**NOTES:**

- EPMM = Exposure Pathway Mitigation Measure.
- ppm = parts per million.
- PID = photoionization detector.
- N/A = Not Applicable.
- VOC = volatile organic compound.
- in. H<sub>2</sub>O = inches of water column.
- NM = Not Measured.

**COMMENTS:**

- Ambient Air reading = 0.1 ppm.
- Approximately 1/2 of the basement is used for storage, so it wasn't possible to observe all the slab penetrations.





**EPMM Option 1  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s): M. Keller Address: 35-37 Knowlton Street  
 Monitoring Start Time: 8:30 AM  
 Date: 05/02/14 Monitoring End Time: 8:45 AM  
 Weather: Overcast/Light Rain, 55°

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<input checked="" type="radio"/> Y / N Cal. Reading (ppm): 100.0
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark 111-475-0 Series		N/A	Zeroed before each reading? <input checked="" type="radio"/> Y / N

**FIELD MEASUREMENTS / OBSERVATIONS**

System Status/Configuration	Pressure/VOC Measurements			
	Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Location Description (e.g., distance from foundation walls)
Radon Fan On?	<input checked="" type="radio"/> Y / N	Ambient Air	N/A	0.0
Exterior Fan Condition (housing, wires, etc)?	<input checked="" type="radio"/> good / fair / poor			
Excessive fan noise?	Y / <input checked="" type="radio"/> N			
Interior Extraction Pipe Condition (cracks, damage, etc)?	<input checked="" type="radio"/> good / fair / poor			
Exterior Pipe Condition (cracks, damage, etc)?	<input checked="" type="radio"/> good / fair / poor			
Leaks Around Slab Penetrations?	Y / <input checked="" type="radio"/> N			
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N			

**NOTES:**

- EPMM = Exposure Pathway Mitigation Measure.
- ppm = parts per million.
- PID = photoionization detector.
- N/A = Not Applicable.
- VOC = volatile organic compound.
- in. H<sub>2</sub>O = inches of water column.
- NM = Not Measured.

**COMMENTS:**

- There is no permanent manometer on the influent pipe at this residence. At the next routine visit, one should be installed. The previously installed sub-slab points were destroyed during the EPMM installation.
- Rust spots are coming through the epoxy on the north and west walls of the basement (pictures taken).
- There are some scuffs on the floor and water staining is evident on the floor near the bulkhead door.



**EPMM Option 1  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION**

GEI Field Representative(s):	M. Keller	Address:	23 Tufts Street
		Monitoring Start Time:	8:55 AM
Date:	05/02/14	Monitoring End Time:	9:05 AM
Weather:	Overcast/ Light Rain, 55°		

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<input checked="" type="radio"/> Y / <input type="radio"/> N Cal. Reading (ppm): 100.0
Manometer (in. H <sub>2</sub> O)	Dwyer	Mark 111-475-0 Series		N/A	Zeroed before each reading? <input checked="" type="radio"/> Y / <input type="radio"/> N

**FIELD MEASUREMENTS / OBSERVATIONS**

System Status/Configuration	Pressure/VOC Measurements			
	Monitoring Point	Pressure (in. H <sub>2</sub> O)	VOC (ppm)	Location Description (e.g., distance from foundation walls)
Radon Fan On?	<input checked="" type="radio"/> Y / <input type="radio"/> N			
Exterior Fan Condition (housing, wires, etc)?	<input checked="" type="radio"/> good / <input type="radio"/> fair / <input type="radio"/> poor			
Excessive fan noise?	Y / <input checked="" type="radio"/> N			
Interior Extraction Pipe Condition (cracks, damage, etc)?	<input checked="" type="radio"/> good / <input type="radio"/> fair / <input type="radio"/> poor			
Exterior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / <input type="radio"/> fair / <input type="radio"/> poor			
Leaks Around Slab Penetrations?	Y / <input checked="" type="radio"/> N			
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N			

**NOTES:**

1. EPMM = Exposure Pathway Mitigation Measure.
2. ppm = parts per million.
3. PID = photoionization detector.
4. N/A = Not Applicable.
5. VOC = volatile organic compound.
6. in. H<sub>2</sub>O = inches of water column.
7. NM = Not Measured.

**COMMENTS:**

1. 100% of basement floor/walls covered with dry wall and tiles.







**EPMM Options 2 and 3  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION FOR PASSIVE EPMM SYSTEMS**

<b>GEI Field Representative(s):</b>	M. Keller	<b>Property Address:</b>	11 Morton Street
<b>Date:</b>	05/14/14	<b>Monitoring Start Time:</b>	9:05 AM
<b>Weather:</b>	Clear, 60°	<b>Monitoring End Time:</b>	9:15 AM
		<b>Option 2 or 3:</b>	2 / <b>3</b>

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<input checked="" type="radio"/> Y / N Cal. Reading (ppm): 100.3

**FIELD MEASUREMENTS / OBSERVATIONS**

**System Status/Configuration**

Exterior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Interior Pipe Condition (cracks, damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Epoxy Condition (cracks, peeling, water damage, etc.)?	<input checked="" type="radio"/> good / fair / poor
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <input checked="" type="radio"/> N
Downdraft Prevention Cap Present?	<input checked="" type="radio"/> Y / N

**NOTES**

- EPMM = Exposure Pathway Mitigation Measure.
- Option 2 = Consists of a venting system installed in a shallow trench around the interior basement floor perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- Option 3 = Consists of a venting system installed beneath the basement floor, a new concrete floor slab, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
- ppm = parts per million.
- PID = photoionization detector.
- VOC = volatile organic compound.

**COMMENTS**

- Ambient Air = 0.4 ppm
- On walls, minor staining and flaking of epoxy.
- On floor, minor cracking of epoxy.



**EPMM Options 2 and 3  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION FOR PASSIVE EPMM SYSTEMS**

GEI Field Representative(s):	M. Keller	Property Address:	10 Morton Street
Date:	05/14/14	Monitoring Start Time:	9:15 AM
Weather:	Clear, 60°	Monitoring End Time:	9:25 AM
		Option 2 or 3:	2 / <b>3</b>

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<b>Y</b> / N Cal. Reading (ppm): 100.3

**FIELD MEASUREMENTS / OBSERVATIONS**

**System Status/Configuration**

Exterior Pipe Condition (cracks, damage, etc.)?	<b>good</b> / fair / poor
Interior Pipe Condition (cracks, damage, etc.)?	<b>good</b> / fair / poor
Epoxy Condition (cracks, peeling, water damage, etc.)?	good / <b>fair</b> / poor
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <b>N</b>
Downdraft Prevention Cap Present?	<b>Y</b> / N

**NOTES**

1. EPMM = Exposure Pathway Mitigation Measure.
2. Option 2 = Consists of a venting system installed in a shallow trench around the interior basement floor perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
4. Option 3 = Consists of a venting system installed beneath the basement floor, a new concrete floor slab, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
5. ppm = parts per million.
6. PID = photoionization detector.
7. VOC = volatile organic compound.

**COMMENTS**

1. Ambient Air = 0.7 ppm
2. Cracked and peeling epoxy on the floors, especially near the bulkhead door.
3. Cracks at the wall/floor join throughout the space.







**EPMM Options 2 and 3  
Field Monitoring / Inspection Form**

**GENERAL MONITORING INFORMATION FOR PASSIVE EPMM SYSTEMS**

GEI Field Representative(s):	C. Malagrida	Property Address:	91-93 Franklin Street
Date:	05/16/14	Monitoring Start Time:	0900
Weather:	Rain, ~45°F	Monitoring End Time:	0915
		Option 2 or 3:	2 / <b>3</b>

**INSTRUMENTATION INFORMATION**

Instrument	Manufacturer	Model	Serial No.	Calibrated To:	Successful Calibration?
PID (ppm)	RAE Systems	ppmRAE3000		100 ppm Isobutylene	<b>Y</b> / N Cal. Reading (ppm): 100.1

**FIELD MEASUREMENTS / OBSERVATIONS**

**System Status/Configuration**

Exterior Pipe Condition (cracks, damage, etc.)?	<b>good</b> / fair / poor
Interior Pipe Condition (cracks, damage, etc.)?	<b>good</b> / fair / poor
Epoxy Condition (cracks, peeling, water damage, etc.)?	<b>good</b> / fair / poor
Slab or Wall Cracks / Openings That Impair System Performance?	Y / <b>N</b>
Downdraft Prevention Cap Present?	<b>Y</b> / N

**NOTES**

1. EPMM = Exposure Pathway Mitigation Measure.
2. Option 2 = Consists of a venting system installed in a shallow trench around the interior basement floor perimeter, cement stucco applied to the walls, and an epoxy vapor barrier applied to the walls and floor.
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5. ppm = parts per million.
6. PID = photoionization detector.
7. VOC = volatile organic compound.

**COMMENTS**

1. Observed peeling epoxy on the basement wall.
2. Water entering the basement from the bulk head door during heavy rain.





Geotechnical  
Environmental  
Water Resources  
Ecological







MassDEP RTN 3-23246  
Phase V Status Report No. 6 and Remedial Monitoring Report No. 21  
50 Tufts Street, Somerville, Massachusetts  
UniFirst Corporation  
August 1, 2014

## Appendix G

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### Disposal Documents

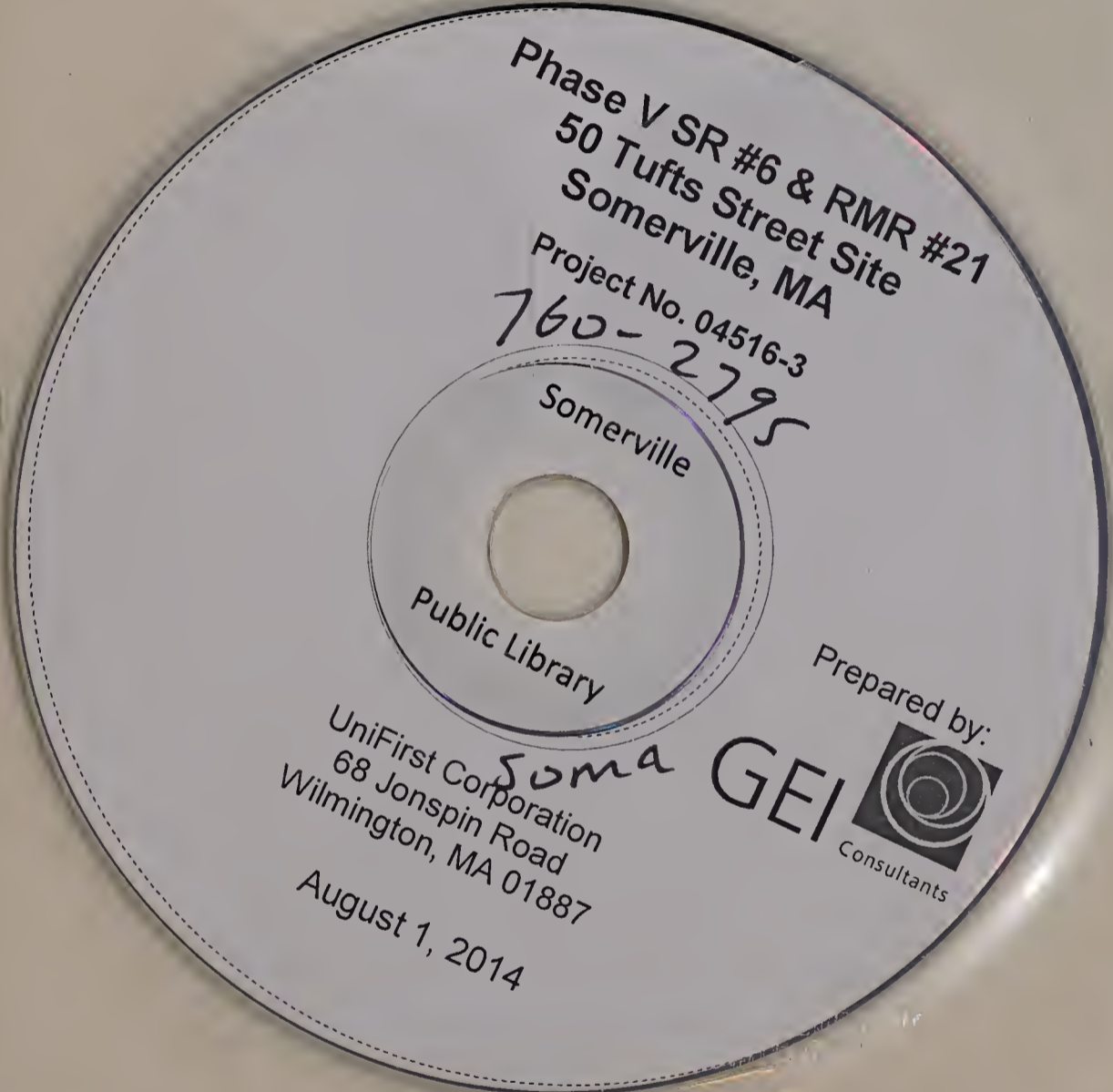


<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>MAC300011271</b>		2. Page 1 of <b>1</b>		3. Emergency Response Phone <b>800-688 1885</b>		4. Manifest Tracking Number <b>011008186 JJK</b>				
		5. Generator's Name and Mailing Address <b>Unifirst Corporation, 68 Jonspin Road Wilmington, MA 01887</b>						Generator's Site Address (if different than mailing address) <b>Unifirst Corporation 50 Tufts Street Somerville MA 02143</b>				
Generator's Phone: <b>878 668-8888</b>						U.S. EPA ID Number <b>MAC300008069</b>						
6. Transporter 1 Company Name <b>New England Disposal Technologies, Inc.</b>						U.S. EPA ID Number						
7. Transporter 2 Company Name						U.S. EPA ID Number						
8. Designated Facility Name and Site Address <b>Kineco 1007 Vulcan Road - Hasitell Benton AR 72015</b>						U.S. EPA ID Number <b>ARD981057870</b>						
Facility's Phone: <b>501 778-9088</b>												
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))				10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
						No.	Type					
		1.	<b>RQ NA3077, Hazardous waste, solid, n.o.s. (carbon, perchloroethylene) 9, PGIII (RQ D039)</b>					<b>DM</b>	<b>5850</b>	<b>P</b>	<b>D039</b>	<b>U210</b>
		2.										
		3.										
	4.											
14. Special Handling Instructions and Additional Information <b>110706-15077 ERG#171</b>  <b>Job# 01-15554</b>												
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.												
Generator's/Offeror's Printed/Typed Name <b>THOMAS COCHRAN</b>						Signature <i>[Signature]</i>			Month Day Year <b>11 02 14</b>			
INT'L	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.						Port of entry/exit:			Date leaving U.S.:		
	Transporter signature (for exports only):											
TRANSPORTER	17. Transporter Acknowledgment of Receipt of Materials											
	Transporter 1 Printed/Typed Name <b>Shawn M Felt</b>						Signature <i>[Signature]</i>			Month Day Year <b>11 02 14</b>		
	Transporter 2 Printed/Typed Name						Signature			Month Day Year		
DESIGNATED FACILITY	18. Discrepancy											
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection											
	Manifest Reference Number:											
	18b. Alternate Facility (or Generator)						U.S. EPA ID Number			Facility's Phone:		
18c. Signature of Alternate Facility (or Generator)						Month Day Year						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)												
1.			2.			3.			4.			
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a												
Printed/Typed Name						Signature			Month Day Year			









Phase V SR #6 & RMR #21  
50 Tufts Street Site  
Somerville, MA

Project No. 04516-3

760-2795

Somerville

Public Library

Prepared by:

Soma GEI  
Consultants

UniFirst Corporation  
68 Jonspin Road  
Wilmington, MA 01887

August 1, 2014



**SOMERVILLE**  
PUBLIC LIBRARY

